THE ATHENÆUM

Journal of English and Foreign Literature, Science, and the Fine Arts.

No. 829. LONDON, SATURDAY, SEPTEMBER 16, 1843. PRICE FOURPENCE (Stamped Edition, 5d.)

For the convenience of Subscribers residing in remote places, the weekly numbers are reissued in Monthly Parts, stitched in a wrapper, and forwarded with the Magazines.—Subscriptions for the Stamped Edition for the Continent, for not less than Three Months, and in advance, are received by M. BAUDRY, 3, Quai Malaquais, Paris, or at the Athenæum Office, London. For France, and other Countries not requiring the postage to be paid in London, 28fr. or 1l. 2s. the year. To other Countries, the postage in addition.

[JAMES HOLMES, TOOK'S COURT, CHANCERY LANE.]

KING'S COLLEGE, London.—SCHOOL.—The THIRD TERM will begin on TUESDAY, the 19th September, when new Pupils will be admitted. Further information may be obtained at the Secretary's Office.
Aug. 23, 1843. J. LONSDALE, Principal.

KING'S COLLEGE, London.—MEDICAL DEPARTMENT, 1843-44.—The WINTER SESSION will COMMENCE on MONDAY, the 2nd of October next, at Two o'clock, P.M., with an INTRODUCTORY LECTURE by Prof. PARTRIDGE.
DESCRIPTIVE and SURGICAL ANATOMY..Richard Partridge, F.R.S.
PHYSIOLOGY, GENERAL and MORBID ANATOMY..R. B. Todd, M.D. F.R.S.
PRACTICAL ANATOMY is taught in the Dissecting-rooms by Mr. J. Simon and Mr. W. Bowman, F.R.S.
CHEMISTRY..J. F. Daniel, D.C.L. F.R.S. and W. A. Miller, M.D.
MATERIA MEDICA and THERAPEUTICS..J. F. Royle, M.D. F.R.S.
MEDICINE..George Budd, M.D. F.R.S.
SURGERY..William Fergusson, F.R.S.E.
MIDWIFERY and DISEASES of WOMEN and CHILDREN..Robert Ferguson, M.D. and Arthur Farre, M.D. F.R.S.
COMPARATIVE ANATOMY..T. Rymer Jones, F.Z.S.

SUMMER COURSES.

BOTANY..Edward Forbes, F.L.S.
FORENSIC MEDICINE..W. A. Guy, M.D.
CHEMICAL MANIPULATION is taught in the Laboratory by Dr. W. A. Miller.

KING'S COLLEGE HOSPITAL.

The Hospital is visited daily at half-past one o'clock.
CLINICAL LECTURES are given every week by the Physicians, Dr. Budd and Dr. Todd, and by the Surgeons, Mr. Fergusson and Mr. Partridge.
The Physicians' Assistant and Clinical Clerks, the House Surgeon and Dressers, are selected by examination from the Students of the Hospital.
RESIDENCE of STUDENTS.—A limited number of Students may be accommodated with rooms in the College, and some of the Professors receive Students into their houses.
Any further information may be obtained upon application to the Dean of the Medical Department, or to the Secretary at the College. J. LONSDALE, Principal.
Sept. 1843.

CIVIL ENGINEERING, ARCHITECTURE, &c.—UNIVERSITY COLLEGE, LONDON.—The Courses of Instruction in this Department will COMMENCE on 16th of October.
MATHEMATICS..Professor De Morgan.
NATURAL PHILOSOPHY, MATHEMATICS, PRACTICAL MECHANICS, &c...Professor Brooke.
CHEMISTRY..Professor Graham.
GEOLOGY..Professor Webster.
DRAWING..Teacher, Mr. G. B. Moore.
CIVIL ENGINEERING..Professor Vignoles.
ARCHITECTURE..Professor Donaldson.
RESIDENCE of STUDENTS.—Several of the Professors, and one of the Masters of the Junior School, receive Students to reside with them; and in the office of the College there is kept a register of parties unconnected with the College who receive boarders into their families; among these are several medical gentlemen. The register will contain references as to respectability, terms, and other particulars.
Prospectuses may be had at the office of the College.
GEORGE LONG, A.M., Dean of the Faculty of Arts.
CHAS. C. ATKINSON, Secretary to the Council.
September, 1843.

UNIVERSITY COLLEGE, LONDON.—FACULTY of ARTS and LAWS, Session 1843-44.—The SESSION will COMMENCE on MONDAY, October 16, when Prof. BROOKE will deliver an INTRODUCTORY LECTURE, at 3 o'clock precisely.

CLASSES.

LATIN..Professor Long, A.M.
GREEK..Professor Malden, A.M.
HEBREW..Professor Hurwitz.
ORIENTAL LANGUAGES..Professor Falconer, A.M.
ENGLISH LANGUAGE and LITERATURE..Prof. Latham, A.M.
FRENCH LANGUAGE and LITERATURE..Prof. Merlet.
ITALIAN LANGUAGE and LITERATURE..Prof. Pepoli.
GERMAN LANGUAGE..Teacher, Mr. Wittich.
COMPARATIVE GRAMMAR..Professor Key, A.M.
MATHEMATICS..Professor De Morgan.
NATURAL PHILOSOPHY and ASTRONOMY..Prof. Brooke.
CHYMISTRY..Professor Graham.
CIVIL ENGINEERING..Professor Vignoles.
ARCHITECTURE..Professor Donaldson.
GEOLOGY..Professor Webster, F.G.S.
DRAWING in all its branches..Teacher, Mr. Moore.
BOTANY..Professor Lindley, Ph. D.
ZOOLOGY, Recent and Fossil..Professor Grant, M.D.
PHILOSOPHY of MIND and LOGIC..Professor the Rev. J. Hoppus, Ph. D.
ANCIENT and MODERN HISTORY..Professor Creasy, A.M.
LAW..Professor Carey, A.M.
JURISPRUDENCE..Professor Graves, A.M.
RESIDENCE of STUDENTS.—Several of the Professors, and some of the Masters of the Junior School, receive students to reside with them; and in the office of the College there is kept a register of parties unconnected with the College who receive boarders into their families; among these are several medical gentlemen. The register will contain references as to respectability, terms, and other particulars.
FLAHERTY SCHOLARSHIPS.—A Flaherty Scholarship of 20l. per annum, tenable for four years, will be awarded in 1844 to the best proficient in Mathematics and Natural Philosophy among the Students of the College under the age of 20 years. The examination will take place in the second week in January. A similar Scholarship for proficiency in Classics will be awarded in 1845, and in subsequent years, alternately, for proficiency in Classics, and in Mathematics and Natural Philosophy.
Printed copies of the Regulations concerning the Scholarships may be had on application at the office.
The Session of the Faculty of Medicine commences on the 2nd of October.
The Junior School opens on the 25th September.
Prospectuses and further particulars may be obtained at the office of the College.—September, 1843.
CHAS. C. ATKINSON, Secretary to the Council.
GEORGE LONG, A.M., Dean of the Faculty.

PARENTS, ETC., STUDENTS IN MEDICINE.

DR. SALT, Fellow of the Linnæan and Medico-Botanical Societies, &c. &c., Lecturer on Obstetric and Forensic Medicine, RECEIVES STUDENTS IN MEDICINE, either as House Pupils or Boarders. Arrangements can be made for the term of a full Curriculum, or for any shorter period. The house is within ten minutes' walk of University and King's Colleges, the Middlesex and Charing Cross Schools, and the Libraries of the British Museum and Royal College of Surgeons. In addition to a more than ordinary attention to their domestic comforts, resident pupils will meet with every advantage necessary to the most effectual prosecution of their studies.—Apply (if by letter, pre-paid,) before 12 or after 4, at 103, Great Russell-street, Bedford-square.

GUY'S HOSPITAL, MEDICAL SCHOOL.—The WINTER SESSION will commence on MONDAY, the 16th OCTOBER.
There will be no Vacation at Christmas, pursuant to the recommendation of the College of Surgeons.
MEDICINE..Dr. Addison and Dr. Babington.
MATERIA MEDICA..Dr. Addison and Dr. G. Bird.
ANATOMY and PHYSIOLOGY..Mr. Cooper and Mr. E. Cock.
ANATOMY, PHYSIOLOGY, and DISEASES of the TEETH..Mr. T. Bell.
PRACTICAL ANATOMY..Mr. E. Cock and Mr. Hilton.
DEMONSTRATORS..Mr. J. Birkett and Mr. Moody.
SURGERY and OPHTHALMIC SURGERY..Mr. Key and Mr. Morgan.
MIDWIFERY..Dr. Ashwell, Dr. Lever, and Dr. Oldham.
PATHOLOGICAL ANATOMY..Mr. T. W. King and Mr. Hilton.
CHEMISTRY..Mr. A. Aikin and Mr. A. Taylor.
BOTANY..Mr. C. Johnson and Dr. G. Bird.
MEDICAL JURISPRUDENCE..Mr. A. Taylor.
NATURAL PHILOSOPHY..Dr. Gull.
MORAL PHILOSOPHY..Rev. F. D. Maurice.
MICROSCOPICAL ANATOMY..Dr. Williams.
CLINICAL LECTURES and INSTRUCTIONS will be given on Medical, Surgical, Ophthalmic, and Obstetric Cases, by the Physicians and Surgeons.
Dr. Gull and Dr. Nevins will assist in their studies those Pupils who are preparing for their Examinations.
Pupils will be permitted to attend the Eye Infirmary and the Obstetric Charity, and will also have the use of the Museums, Anatomical Model Room, Library, Reading Room, and Botanic Garden.
For particulars apply to Mr. Stocker, Apothecary to the Hospital.

STODDART and CONOLLY FUND.—At a PUBLIC MEETING, held at the Crown and Anchor Tavern, in the Strand, on Thursday, the 7th September, Captain GROVER, Unattached, F.R.S., in the Chair, the following resolutions were passed unanimously:—

Moved by J. S. Buckingham, Esq., seconded by Colonel Humfrey:

1. That, in the uncertainty which exists respecting the lives of Colonel Stoddart and Captain Conolly, it is desirable to ascertain the real facts of the case.

Moved by James Walker, Esq. F.R.S., President of the Institution of Civil Engineers, seconded by Dr. Burnes, brother of the late Sir Alexander Burnes:

2. That a Committee be formed to communicate with the British Government on this subject, to send out immediately the Rev. Dr. Joseph Wolf to Bokhara, to ascertain the fate of Colonel Stoddart and Captain Conolly, and to take such measures as may be thought necessary.

Moved by Captain W. G. Moorsom, and seconded by Captain Nestor:

3. That the following gentlemen do constitute such Committee, with power to add to their numbers, and that a subscription be now opened to obtain the requisite funds for accomplishing the object proposed:—Captain Downes, R.N., Lieutenant Raper, R.N., J. S. Buckingham, Esq., Colonel Humfrey, Captain Moorsom, Lewis Tonna, Esq., Captain Grover.

(Signed) JOHN GROVER, Chairman.

It was moved by J. S. Buckingham, Esq., and seconded by Captain Moorsom:

That the thanks of the Meeting be given to Captain Grover for the great zeal and humanity with which he has brought the subject before the public, and for the manner he has filled the chair this day.

Subscriptions received by Messrs. Drummond, Charing-cross; Messrs. Hankeys, Fenchurch-street; and the Committee.

Subscriptions received:

M. F.	£1	0	0	James Burnes, Esq.			
Capt. Downes, R.N.	5	0	0	Montrose	£2	2	0
Mrs. Abbott Alton	5	0	0	Thomas Elliott, Esq. Regent-square	2	2	0
Major Bayley, Madras Army	20	0	0	E. S. Kennedy, Esq.	1	1	0
Lieut. Raper, R.N.	1	0	0	"Towley"	0	10	0
Lewis Tonna, Esq.	1	0	0	Lord Beauvale	20	0	0
Mrs. Durrant	1	0	0	Admiral Sir Edward Codrington, G.C.B., G.C.M.G.	5	0	0
Wm. Stedman, Esq.	0	10	0	Miss Isabella Reynolds	0	5	0
Lieut. Wilson, R.N.	1	0	0	Wm. Buckmaster, Esq.	1	0	0
Capt. Nestor	5	0	0	M. I.	0	10	0
Capt. C. Stuart	1	0	0	A. Himibe, Esq.	1	0	0
Mrs. C. Stuart	1	0	0	Robert Johnson, Esq.	1	1	0
Capt. Grover	20	0	0	Viscount Melbourne	20	0	0
— Thompson, Esq. Conduit-street	1	0	0	Miss Butterworth, Chelsea	1	0	0
Col. Humfrey	1	0	0	Lieut. Bethune Jas. Walker, R.N.	5	0	0
J. S. Buckingham, Esq.	5	0	0	Rev. Jas. Pyle Ashe	2	0	0
Capt. Agnew	5	0	0	B. C. Clark, Esq. Ceylon	1	1	0
R. Haughton, Esq. Military Seminary, Addiscombe	5	0	0	Rev. W. Brockman	1	0	0
Capt. Moorsom	5	0	0	Arthur Barr	0	10	6
J. T. Grover, Esq.	1	0	0	A Lady	1	0	0
Major Hamlet Wade	1	0	0	General Hodgson	2	0	0
Alex. F. Campbell, Esq.	5	0	0	A Lady	1	0	0
—Pursuard, Esq.	1	0	0	A Friend	0	10	6
A Young Irish Woman	1	0	0	A Lady	0	10	0
Alex. Boetefeur, Esq.	1	0	0	Editor of Athenæum	3	3	0
Dr. David Burnes, brother of the late Sir Alexander Burnes	2	2	0				

JOHN GROVER, Capt. Unattd. Army and Navy Club, President of the Committee.

BRITISH AND FOREIGN INSTITUTE.

President.
THE RIGHT HONOURABLE THE EARL OF DEVON.

Trustees.
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Sir George Larpent, Bart. | Benjamin Bond Cabbell, Esq.

The Second Enrolment, making Five Hundred Members, being now filled up, immediate measures will be taken for opening the Establishment. For this purpose the spacious and handsome Residence of the late Lord Wrottesley, in George-street, Hanover-square, has been taken, and will be furnished for the use of the Literary Department of the Institute, while the adjoining Mansion, formerly the Residence of Lady Cowper, will be also fitted up with all the requisite conveniences for the Club Department of the Institute, under the direction of a skilful and experienced Restaurateur, with a communication between the two buildings. As Candidates for admission are entered in the strict order of priority, early application can alone secure an early registry. Such applications can be made personally, or by letter, to the undersigned, from ten to five o'clock, at the Hanover-square Rooms, where the Committee sit daily, and where Prospectuses and Cards of Admission may be procured. JAMES S. BUCKINGHAM,
September 12, 1843. Managing Director.

EDINBURGH REVIEW, No. CLVIII.—ADVERTISEMENTS for insertion in No. 158 of the *Edinburgh Review*, must be sent to the Publishers' by Monday, the 25th instant; and BILLS on or before Wednesday, the 27th.
20, Paternoster-row, Sept. 16, 1843.

ORIENTAL LANGUAGES, ETC.

MR. HATTERSLEY gives LESSONS in Arabic, Persian, Turkish, Sanscrit, Hindustani, Bengali, Hebrew, Greek, Latin, French, Italian, Spanish, Portuguese, German, Dutch, Swedish, Danish, Icelandic, and Russian; in Theoretical and Practical Mathematics, &c.
3, Charlotte-row, Holloway-road, Opposite Highbury Gates.

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IMPORTANT EXTENSION of the DESIGNS ACT.—By the Act to amend the Designs Act, which came into operation on the 1st of September, *Designs for Articles of Utility*, as well as *Ornamental Designs*, may be *protected by Registration*, for the whole of the three Kingdoms, for three years, at a small expense. For a copy of the Act see *Mechanics' Magazine*, No. 1017, Sept. 2, price 3d.—For further particulars apply to Messrs. Robertson & Co., Patent and Designs Registration Agents, 166, Fleet-street, London (*Mechanics' Magazine* Office).

OLD AND NEW BOOKS.

PARTIES visiting BIRMINGHAM at the approaching Musical Festival, are respectfully informed that there are now on Sale at 257, NEW STREET, many thousand Volumes of MISCELLANEOUS LITERATURE (many of which are rare and difficult to be procured), offered at much lower prices than such books can be obtained from any house in London.
Messrs. Cornish, Cheap Book Establishment, 37, New-street, Birmingham.

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Catalogues to be had of the Publisher, 26, Clare-street, Bristol; and of Messrs. Longman & Co. London. Price 2s. 6d.; or by post, 4s., returned to purchasers.

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HINTS for the FORMATION of READING SOCIETIES.—The plan advocated in this little pamphlet will effect two important objects—that of adding to the supply of the current literature the choice of all the most valuable works in the various languages, and that of extending the choice of new books to the entire productions of the press. It is especially adapted to provincial readers, as by a small annual subscription the perusal of all the New Works as they appear may be obtained.
Saunders & Otley, Publishers, Conduit-street;
of whom may be had, gratis and post free,
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GROWTH OF PLANTS.

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TO ADVERTISERS.

NEW SERIES of the JOURNAL of AGRICULTURE and the TRANSACTIONS of the HIGHLAND AND AGRICULTURAL SOCIETY of SCOTLAND.

The Second Number will be published on the 2nd of October. Advertisements for it are requested to be forwarded to the Publishers, Messrs. Blackwood & Sons, Edinburgh, on or before the 20th of September, or to 22, Pall Mall, before the 16th inst.

The Journal is most extensively circulated among the Landed Proprietors and Agriculturists of Scotland, England, and Ireland. Nearly 2,000 of the Subscribers are Members of the Highland Society and Local Agricultural Societies in connexion with it.

ADVERTISEMENTS are inserted on the following Terms:

Not exceeding Ten Lines	£0 7 0
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Of these 2,500 Copies are required.

A Second Edition of the First Number has just been published.

Edinburgh, Sept. 4, 1843.

OFFICE for PATENTS of INVENTIONS and REGISTRATION of DESIGNS, No. 14, Lincoln's Inn-fields, where all business relating to the Securing and Disposing of BRITISH and FOREIGN PATENTS, Preparation of Specifications, Drawings of Inventions, is expeditiously and economically effected.

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A Prospectus, containing much useful information, may be obtained, and references to an Alphabetical List of Patents and Registrations made, on application to Mr. Alexander Prince, 14, Lincoln's Inn-fields.

BRITISH METALLURGICAL ASSOCIATION of ALICANTE.—According to a statement lately printed by the Directors of the above Association at Alicante, it appears that the result of their operations to 30th April, 1843, was—

	Dollars.	
373,738 oz. Silver delivered at their works agreeably to contracts entered into, the proceeds	418,037	14 6
16,084 cwt. of Leads, of which 9,084 had been shipped to England, the proceeds, including a profit insured on cargo, per *Ocean Child*, which vessel foundered at sea	81,618	0 26
8,000 cwt. remained for sale or further shipment		
The cost of the Buildings at Alicante	33,430	9 0
The cost of Machinery from England, and erecting seven furnaces	28,696	16 15
The cost of a Smelting Establishment at Parrucha, with five furnaces complete, which now yields from 40,000 to 45,000 ounces of silver monthly, besides lead, at a comparatively small expense, owing to its proximity to the mining district	45,000	0 0
	107,127	5 15
Profits on an average of nine months' work, with actual force at both works, on a capital of only 50,000 dlrs.	54,904	7 16
Deduct extraordinary expenses, which will not occur again, incurred in bringing from England an experienced assayer, and the necessary workmen of every description, including their salaries until the works were ready	D. 10,000	0 0
and interest on monies taken on loan	14,304	19 30
	24,304	19 30
	D. 30,699	7 20

Net gain on 30th April, 1843, including every charge from commencement of the enterprise 16 months ago, for a dividend of 61 per cent.

At a General Meeting of Shareholders held on the 31st of May last, in conformity with the rules of the Company, it was resolved that 250 additional shares (or more, if the Directors judged fit) should be issued at 400 dlrs. each: of these a number were at once subscribed for, and by last advices about one-fifth of the new issue had been disposed of. It was originally contemplated by the leading shareholders that the capital of the Company should be composed of 2,000 shares, at 100 dlrs. each; however, it was finally agreed on between them that a trial should be made with only 500; this has been done, and with such very flattering results, that the recommendation of the Directors in favour of a further issue of shares for the purpose of forming a more suitable capital, was unanimously approved of.

N.B. By the 13th article of the Deed of Settlement, and in accordance with the articles of the Spanish Commercial Code, Shareholders are only answerable for the liabilities of this Company to the extent of their respective shares.

Applications for shares (400 dlrs. each—85*l.* sterling) to be made at the office of the Company's London Agents, 29, Bucklersbury, between the hours of 11 and 2. CLAY & GILLMAN,
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HORTICULTURAL ALMANACK.

The STATIONERS' COMPANY will publish, with their usual Almanacks, early in November, price 1*s.*,

THE GARDENERS' ALMANACK, and CALENDAR and REGISTER of the KITCHEN, FRUIT, FLOWER, and FORCING DEPARTMENTS, for the Year 1844.

By GEORGE W. JOHNSON, Esq.,
Fellow of the Agri-Horticultural Society of India; Corresponding Member of the Maryland Horticultural Society; and Author of 'A History of English Gardening,' 'The Kitchen Garden,' &c.

*** This almanack will afford a large supply of matter, interesting not only to the professional, but also to the domestic gardener, as well as to the amateur cultivator of flowers and fruits, and general reader. Besides containing calendarial directions and suggestions for every department during the current year, it will also be a register of all discoveries in gardening which have characterised the previous twelvemonths. The contents will, for the most part, vary every year; and it is recommended that each annual publication be preserved, as an index will be given to bind up with each volume. To Nurserymen, Seedsmen, Implement-makers, and Publishers of works connected with the cultivation of the soil, this Almanack offers a peculiarly desirable organ for Advertisements, as a very large number will at once be circulated through the United Kingdom, and will remain *a permanent and indexed record* for reference in the hands of those most desirable to be made acquainted with their contents, viz., the Landed Gentry, and Cultivators of Gardens generally.

WORKS PRINTED FOR
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28, UPPER GOWER-STREET.

On the 2nd of October will be published, Part I. (on Gas Illumination), price 2*s.* 6*d.* of

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II.

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In the course of this Month, in fcap. 8vo.

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By JUSTUS LIEBIG, M.D.,
Professor of Chemistry in the University of Giessen;
Edited by JOHN GARDNER, M.D., Member of the Chemical Society.

III.

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Arthur Hugh Clough, M.A., Fellow of Oriel College, Oxford.
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William Fishburn Donkin, M.A., Savilian Professor of Astronomy in the University of Oxford.
Edward Elder, M.A., Head Master of Durham School.
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John T. Graves, M.A., Professor of Jurisprudence in University College, London.
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Arthur P. Stanley, M.A., Fellow and Tutor of University Coll., Oxford.
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Robert Whiston, M.A., Fellow of Trinity College, Cambridge.

Part IV., price 4s. will be published October 2.

By the same Editor,

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LONDON, SATURDAY, SEPTEMBER 16, 1843.

REVIEWS

The Psalmists of Britain.—Records, Biographical and Literary, &c. By John Holland. 2 vols. Groombridge.

"Psalmody, in its literature," says Mr. Holland, "must, at best, be allowed to be sufficiently alien to the modern taste for unnaturally-exciting fiction"; and, therefore, he infers that "but little sympathy can be expected for a subject like this from the great bulk of general readers." Our industrious author appears to us somewhat mistaken. We can only suppose that he has lived so entirely apart from the movements of the time—with Sternhold and Hopkins, the Countess of Pembroke, Myles Coverdale, and his other closet companions,—as to be ignorant that Fiction is now at a discount; whereas Poetry, Painting, Architecture, and Music are becoming objects of popular attention. Psalmody, indeed, in its connexion with the religious movement of the age, has other interests and attractions that legitimately belong to it; since in proportion as one party, with its motett societies, its liturgical hymns, and antiphonies, is doing its utmost to Romanize the forms of our worship, the other grasps its psalm-book—that signal of dissent and recusancy—all the more strongly; and triumphs in proportion as the importance of that volume, whether literary or spiritual, is exalted. Why the Psalter, with its rhythmical tunes and ballad metres, should have been pitched upon by the zealots as an engine of defence and offence against a church accused of ministering to sensual appetites by spiritual excitements,—why the version of Marot, which contributed its device to the picture of Diana of Poictiers, when her unadorned charms were painted to please a voluptuous king by Primaticcio, should have been adopted by the stern reformers of Geneva,—has always seemed to us as fair an example of human inconsistency as the annals of opinion present. But we must leave these speculations, though it was necessary to advert to them by way of indicating the tone in which a work like this may be executed.

Mr. Holland's volumes belong to the Tabernacle rather than the Church. A Keble, had he undertaken the task at all, would have thrown over it a light as different from our author's, as the tints which stream through emblazoned glass upon a cathedral pavement, fretted with epitaphs, are from the clear, broad, but monotonous blaze of noon, which looks in through the window of a meeting-house on its closely-packed pews. Mr. Holland's book, however, is more a curiosity of literature for the general reader, than an aid to the controversialist or devotee. So far from his *variorum* version of the Psalms being the best we have seen, as some might expect, it is one of the least satisfactory. In his anxiety to include every author or amateur who has exercised his talents upon the Psalms of David, he has been led to include many compositions in every respect dry and inferior. It is as a treasury of curious anecdote, containing also many quaint specimens of versification, that the publication before us is to be recommended; and we will proceed to justify this character by such notices and extracts as are likely to be most generally acceptable.

Mr. Holland enumerates, in his introduction, the different forms in which the Psalms have been used,—pointing to the metrical version of St. Jerome's French Psalter, in the library of Corpus Christi College, as the earliest version we English possess. This is as ancient, Dr. Warton supposed, as the reign of Henry the Second or Richard the First. But the Psalter, even in a dead language, was never kindly adopted by the Romish church; a few insulated specimens, such as 'Dixit Dominus,' were employed alternately with such traditional and imaginative hymns as the 'Stabat Mater,' or 'O salutaris.' Nor is it probable that there was any version in our tongue before the days of Sir Thomas Wyatt the elder, who is said to have translated the whole Psalter in an agreeable, but somewhat affected strain, the mode of which was caught from the Italian poets. His seven penitential psalms, with prologues, have been drawn upon by Mr. Holland for his second series of extracts. With all its quaintness, there is a music in Wyatt's versification, which we do not find in the rhymes of some more recent tuners of David's harp. He uses the double final syllable like one who had learned its value in southern models. So, too, the psalm, which Mr. Holland has selected from the three versified by the Earl of Surrey, possibly during his imprisonment in the Tower, bears traces of the gentleman, scholar, and musician, in the nice adjustment of its phrases and the harmony of its metre. On the other hand, we cannot but fancy that the specimen which our author has extracted from the "Goastly Psalmes" of Myles Coverdale, has the nerve and the ruggedness belonging to an iconoclast and a controversialist. This, however, may be "a prophecy after the fact."

We come next to Sternhold and Hopkins, for whom we feel a certain friendliness; placarded though they be in that well known and bitter epigram, which declareth how they

> had the qualms,
> When they translated David's psalms,
> To make the heart full glad.

The two men do not, however, sit upon the same bench as poets, though equally sincere in their zeal, for which sincerity it is that we prefer them to smoother paraphrasers. Sternhold could occasionally rise to a high strain. The Groom of the Robes to Henry the Eighth occasionally renders the loftier passages of praise and exaltation with a pomp of language, which suggests to our imaginations ideas of stately worship—

> —in dim chapels roofed with gold,
> Perfumed with incense smoke,

as vividly as the version employed in the Kirk of Scotland, by its sternness, calls up visions of those rude and lonely places by loch and lynn, where the Nonconformists were obliged to lie hidden from the persecuting eye and the sharp sword of Prelacy. Thus much of Sternhold: Dr. Warton, and with him Mr. Holland, prefers Hopkins, as the more perfect versifier. This may be: and yet, if memory serve us, he was the more common-place and familiar, as in the following example, taken from the seventy-fourth psalm, in which he makes David inquire—

> Why doost withdrawe thy hand aback,
> And hide it in thy lappe?
> O pluck it out, and be not slack,
> To give thy foes a rappe!

To those who are interested in the subject, the following passage, by Mr. Holland, will be welcome, as assigning each of these much vilified old poets his share in the collection:—

"Hopkins translated fifty-eight of the Psalms, forming the Old Version, as indicated by his initials prefixed. He first, however, only published seven; namely, Psalms xxx., xxxiii., lxii., lii., lxxvix., lxxxii., clxvi.; and these anonymously, at the end of the early editions of the collection, versified by Sternhold. They are introduced by the following Preface:—'Thou hast here (gentle reader) unto the Psalmes that were drawen into Englishe metre by Master Sternholde vii. mo adioyned. Not to thentent that thei shuld bee fathered on the dedde manne, and so through his estimacion be the more highly esteemed: neither for that thei are in mine opinion (as touchyng the metre) in any part to be compared with his most exquisite doying. But especially to fill up a place, which else should have been voide, that the boke may rise to his (its) just volume, and partly for that thei are fructefull, although thei bee not fine: and comfortable vnto a christian mynde, although not so pleasaunte in the mouthe or eare. Wherefore if thou (good reader) shalte accepte and take this my dooying in good parte, I have my hartes desire heerin. Farewell.' It is not, however, exclusively as a large contributor to, but equally as the ostensible Editor of, the collected Psalms of the Old Version, that Hopkins is entitled to consideration. As before stated, it is doubtful whether the *thirty-seven* Psalms, first rendered and seemingly prepared for the press by Sternhold, were published by him or not in 1549. The edition of 1551 contains the *seven* additional ones by Hopkins, with the address above-mentioned. Whitynghame versified *seven* more, and added them to the collection which he printed at Geneva, where he was residing in exile in 1556: this made the number fifty-one, the whole of which have, sometimes by mistake, been attributed to Sternhold. The remainder of the Psalms having been versified by different individuals, they were first printed altogether, and at the end of the Book of Common Prayer, in 1562, under the title of 'The whole Book of Psalmes, collected into English metre, by T. Sternhold, J. Hopkins, and others. Set forth and allowed to be sung in all Churches before and after Morning and Evening Prayer, and also before and after Sermons.'"

Almost every one of the elder names on Mr. Holland's list, invites us to pause and speculate. After Hopkins comes Norton—that "forward and busy Calvinist," as Wood calls him; not so ascetically Calvinistic, however, but he could help Lord Buckhurst in play-writing, being understood to have had a hand in the tragedy of 'Ferrex and Porrex.' An article, too, could be made on the life and fire-hot zeal of William Whittingham, the next of the psalm-singers. At one period of his career, he was persuaded by Calvin to occupy, at Geneva, the pulpit which Knox had filled—later, he gave his right hand to supply the choir of his church at Durham with the best songs and anthems which the Queen (Elizabeth)'s Chapel could supply—while with his left he rooted out the remembrance of Saint Cuthbert in his own city, by desecrating the works of wood and stone which the Cathedral contained. Strange it seems now, when calmly looking back to those stormy times, that one, who, though no poet, meant to be one—who cared so strenuously for music—should be so eager to raise the hand of intolerance against the work of a brother artist. His tomb was, in its turn, "miserably defaced by the Scots, when they invaded England, in 1640"—a restless close to the history of a restless man.

Passing over Kethe, Wisdom, Churchyard, Pullain, Mardley, the other versifiers of our old singing Psalms, with the carefully collected observations with which Mr. Holland closes this section of his labours, we are once again called to admire the versatile pursuits and accomplishments of that magnificent virago, our virgin Queen. She, too, tried her hand as a sacred poetess; but the verses scrawled by her with charcoal upon the Woodstock shutter; nay, the solitary line cut with a diamond on the window, in encouragement of the young courtier's "fears to climb," contain more of the heart of true poetry than the Fourteenth Psalm, here given by Mr. Holland. Crowley, the next contributor to Mr. Holland's anthology, was almost as various a genius, in his humble way, as Dr. Bull's patroness, and Burleigh's empress; being at once printer, bookseller, preacher, and poet—by courtesy. He translated, too, some of the Catholic Latin hymns, in a publication called 'The School of Virtue and Good Nurture;' but their grand resonant lines must have had a meagre interpretation, if we are to judge from the specimen here laid before us. We are not stopped by any other name of worship or interest, till we come to Archbishop Parker, whose complete

version of the Psalms was the next finished after the entire Psalter by Sternhold and Hopkins.

"But whether it was undertaken with any consciousness that others were engaged in a similar way, or afterwards printed with any reference to a comparison with the Version which obtained so firm an hold of the public taste, does not appear. As the Archbishop was a supporter of a settled order of worship in the Church, and as his Psalm Book, although anonymous, was arranged for singing, some diversity of opinion has existed, not only as to his object in composing such a Work, but as to whether or not any copy of it was really known to be extant. Some of our musical antiquaries have conjectured, that the Archbishop, who was skilled in music, and had formerly founded a Music-School, in his College of Stoke Clare, intended these Psalms, which are adapted to complicated tunes of four parts, probably constructed by himself, and here given in score, for the use of Cathedrals, at a time when compositions in counterpoint were uncommon in the Church, and when that part of our choir-service when the motet or anthem, which admits a more artificial display of harmony, and which is recommended and allowed in Queen Elizabeth's earliest ecclesiastical injunctions, was yet almost unknown, or but in a very imperfect state."

The Archbishop seems to have been as over-exquisite in his rhythms as he was over-complicated in the music, to which he adapted his words. But the times were not far distant when stanzas were written in the shape of wedges or hatchets; and perhaps we cannot better show how little the spirit of poetry had to do with such quaintnesses, than by citing three from among the fifty verses of the Archbishop's rhyming Preface:—

Herein because: all men's delight,
Bene diverse found in mind:
I turn'd the Psalms: all whole in sight,
In rhythms of divers kind.

And where at first: I secret meant,
But them myself to sing:
Yet friends requests: made me relent,
Thus them abroad to bring.

Us song should move: as sprite thereby,
Might tunes in concord sing:
God grant these Psalms: might edifie,
That is the chiefest thing.

We are now coming to something more like poetry,—as the psalms by Alexander Scott, and Hall, the anatomist and chirurgeon, and Gascoigne, best remembered, perhaps, for his 'Masque' performed before Queen Elizabeth—will testify to all who turn our author's pages. One step more brings us to Sir Philip Sidney and the Countess of Pembroke, of whom it would be meeter to write in verse, than the lagging prose in which we have mentioned the names of their predecessors, were we to trust ourselves among the accomplished graces and deep affections that marked their lives. The Countess (in this we follow Mr. Holland) was more eminent, in her share of the version, than her admirable brother. She too, like Archbishop Parker, had a taste for quips and cranks, and modes of versification more symmetrical to the eye than musical to the ear. But in the following extract will be found something better than "the principle of the pyramid," for the calligraphical illustration of which it might have been constructed:—

Conferre, O Lord!
This benefitt on me,
That I may live and keep thy word.
Open mine eyes,
They may the riches see,
Which in thy word enfolded lies.

A pilgrim right
On earth I wandring live,
O barre me not thy statute's light.
I wast and spill,
While still I longing grieve,
Grieve, longing for thy judgments still.

Thou proud and high
Dost low and lowly make:
Curst from thy rule who bend awry.
What shame they lay
On me then from me take;
For I have kept thy will allway.

Let princes talk,
And talk their worst of me;
In thy decrees my thoughts shall walk.
All my delight
Thy witnest will shall be,
My councell to advise me right.

Hard by Sir Philip Sidney and Lady Pembroke are a pair of brother Scots—John and Robert Wedderburn, sons of a merchant of Dundee, and scions of a poetical family, since their brother James set in a dramatic form 'The Beheading of John the Baptist.' The three were zealous Reformers; but if they be, indeed, the authors of 'Ane Compendious Booke of Gude and Godly Ballates, changed out of Prophane Sangs,' John and Robert, at least, may be pointed at as foremost among those who, in their eagerness to provide an antidote to Papistry, fell into scandals as flagrant as those they betook themselves to reform. The authors of spiritualized versions of 'The hunt is up,' and 'John cum kis me now,' had no right to thunder out protests against the licences of monkish wit, the Abbots of Misrule, and other such holiday vanities as the comprehensive indulgence of the Romish Church sanctioned, if not encouraged. But, with all their puritanical zeal, the Wedderburns had something of the "divine breath" which is independent of time, creed, or dialect. Let the reader translate the following verse from the Fifty-third Psalm, and (if musical) allow for the *tempo rubato* of the "tempest" in the sixth line, and we think he will be of our judgment:—

As wheill vnstable, and chaffe before the wind,
And as the wood consumed is with fire
And as the flame burning where it can find
The faggot in the field with great inspyre;
Sickliyke persew them with thy grievous ire;
Let thy tempest their wrothfulness reuenge,
And let thy storme their pride in purteth change.

The names of Francis Davidson, Queen Elizabeth's Secretary, of Alexander Montgomery, and of Henry Ainsworth, the Brownist, exiled to Amsterdam—

—"a learned man, reduced to deep poverty in the land of his exile, and 'living,' says Neal, 'upon ninepence a week, and some boiled roots, and was reduced to the necessity of hiring himself as a porter to a bookseller, who first of all discovered his skill in the Hebrew language, and made it known to his countrymen—'"

—all tempt us to linger. There is, again, matter enough for a separate treatise, were we to enter on a consideration of the gifts and graces of that wisest of fools and that most foolish of wise men, Gentle King Jamie. But our readers will prefer to have our notice of the first volume of this interesting book closed by Lord Bacon's paraphrase of

Psalm XC.

O Lord thou art our home, to whom we fly,
And so hast always been from age to age:
Before the hills did intercept the eye,
Or that the frame was up of earthly stage.
One God thou wert and art, and still shalt be;
The line of time it doth not measure thee.

Both death and life obey thy holy lore,
And visit in their turns as they are sent;
A thousand years with thee they are no more
Than yesterday, which, ere it is, is spent:
Or as a watch by night, that course doth keep,
And goes and comes unwares to them that sleep.

Thou carry'st man away as with a tide:
Then down swim all his thoughts that mounted high:
Much like a mocking dream that will not bide,
But flies before the sight of waking eye;
Or as the grass, that cannot term obtain,
To see the Summer come about again.

At morning fair, it musters on the ground;
At ev'n it is cut down and laid along:
And though it spared were, and favour found,
The weather should perform the mower's wrong:
Thus hath thou hanged our life on brittle pins,
To let us know it will not bear our sins.

Thou bury'st not within oblivion's tomb
Our trespasses, but enterest them aright;
Ev'n those that are conceived in darkness' womb,
To thee appear, as done by broad daylight:
As a tale told, which sometimes men attend,
And sometimes not, our life steals to an end.

The life of man is threescore years and ten,
Or if that he be strong, perhaps fourscore;
Yet all things are but labour to him then,
New sorrows still come on, pleasures no more.
Why should there be such turmoil and such strife,
To spin in length this feeble line of life?

But who considers duly of thine ire?
Or doth the thoughts thereof wisely embrace?
For thou, O God, art a consuming fire:
Frail man, how can he stand before thy face?
If thy displeasure thou dost not refrain,
A moment brings all back to dust again.

Teach us, O Lord, to number well our days,
Thereby our hearts to wisdom to apply;
For that which guides man best in all his ways
Is meditation of mortality.
This bubble light, this vapour of our breath,
Teach us to consecrate to hour of death.

Return unto us, Lord, and balance now
With days of joy, our days of misery;
Help us right soon, our knees to thee we bow,
Depending wholly on thy clemency:
Then shall thy servants both with heart and voice,
All the days of their strife in thee rejoice.

Begin thy work, O Lord, in this our age,
Show it unto thy servants that now live;
But to our children raise it many a stage,
That all the world to thee may glory give.
Our handy work likewise, as fruitful tree,
Let it, O Lord, blessed, not blasted be.

We cannot conclude without recording, among the contributors to the holy work, the name of pious, accomplished, poetical George Herbert, and of Sandys, whose verses have more of the poet, and less of the priest, than those by any we have named. But with this slight mention of these honoured men, we must close our present notice.

The Despatches of Hernando Cortes, &c. Translated into English, from the original Spanish, by G. Folsom. Wiley & Putnam.

The conquest of Mexico by Cortez is unquestionably the most brilliant achievement in the long series of remarkable events connected with the discovery and early settlement of the New World. There we find the outline, at least, of a great empire, and some civilization, the monuments of which have begun, in our own times, to engage the attention of the learned. In Mexico there was a dense population, there were large towns, and there was that prime mover of human labour and daring—gold, in abundance. This great empire was conquered and the gold won by a handful of Spaniards, led by one who owed his elevation wholly to the caprice of fortune, for Cortez had no experience of war or command, nor had he shown in his early career much passion for romantic adventure. But great prospects gave birth to great hopes, and these kindled inextinguishable passions; hence the disregard of bodily fatigue and the perseverance, in spite of frequent reverses, which certainly mark the progress of all the Conquistadores. Cortez had the advantage, too, of being the first who trod that elevated stage; those who came after him, if they were his equals in heroic qualities, fell short of him in opportunities. Pizarro, the conqueror of Peru, was but a coarse imitator of Cortez; the courage and cunning of the latter became with the former ferocity and perfidiousness. The extraordinary rapidity with which the New World was explored and colonized, was due in no slight degree to the success of Cortez.

The philosopher, it is true, undazzled by the surface of things, may doubt the genius and heroism of the first conquerors of America. Looking at the great inequality in point of arms between the Indians and the Spanish soldiers, he may argue that the conquest of the Mexican empire was, under all the circumstances, an easy achievement for a European of the meanest capacity. Men nearly naked, armed with wooden swords, edged with flints, and frightened at the sight of horses, which were new to them, could not, it is evident, offer any effectual resistance to cavaliers in full armour, wielding Toledo blades, and provided with matchlocks. If Cortez had, therefore, only boundless ambition and constancy under the reverses arising from his own miscalculations, his eventual suc-

cess was inevitable. Whatever truth may be in this reasoning, we are certain, that if persisted in, it would leave the world but few heroes. All history—nay, the great globe itself, if analyzed in this way, would go off in vapour, leaving behind but a small residuum of colouring matter and *fæx mera*. We are willing, therefore, to take Cortez for a hero, since he did what appears to the bulk of mankind to have been a great thing. But his exploits are what we admire, not his writings. His letters to the Emperor Charles V. give us but an imperfect, and on many grounds suspicious, account of the conquest of Mexico. For a full and impartial history of that event, as well as for the personal history of the hero himself, we must look elsewhere. Cortez was by no means an elegant writer, and, in this respect, his translator has faithfully preserved the character of the original. Though his narrative is in general tedious and artful, yet it offers some curious passages, and late researches give us reason to believe that his description of the opulence and civilization of the country was not so exaggerated as might be at first imagined. For a picture of national prosperity, long since extinct, take the following account of Tlascala, which still exists, though much decayed:—

"This city is so extensive and so well worthy of admiration, that although I omit much that I could say of it, I feel assured that the little I shall say will be scarcely credited, since it is larger than Granada, and much stronger, and contains as many fine houses and a much larger population than that city did at the time of its capture; and it is much better supplied with the products of the earth, such as corn, and with fowls and game, fish from the rivers, various kinds of vegetables, and other excellent articles of food. There is in this city a market, in which every day thirty-thousand people are engaged in buying and selling, beside many other merchants who are scattered about the city. The market contains a great variety of articles both of food and clothing, and all kinds of shoes for the feet; jewels of gold and silver, and precious stones, and ornaments of feathers, all as well arranged as they can possibly be found in any public squares or markets in the world. There is much earthenware of every style and a good quality, equal to the best of Spanish manufacture. Wood, coal, edible and medicinal plants, are sold in great quantities. There are houses where they wash and shave the head as barbers, and also for baths. Finally, there is found among them a well regulated police; the people are rational and well disposed, and altogether greatly superior to the most civilized African nation."

Add to this the description of the neighbouring state of Cholula:—

"The inhabitants are better clothed than the Tlascalans in some respects, as the superior classes of citizens all wear cloaks over their other dress; similar in shape, material, and bordering, to those of Africa, but unlike them in being provided with pockets. Since the late troubles they have been and continue true and obedient vassals of your Majesty, performing whatever is required of them in your royal name, and I believe they will remain so hereafter. This state is very fertile under cultivation, as there is much land, most of which is well watered; and the exterior of the city is more beautiful than any in Spain, as it contains many towers, and is situated on a plain. And I assure your Majesty, that I have counted from a mosque or temple four hundred mosques and as many towers, all of which are of mosques in this city. This city is more suitable for the Spaniards to inhabit than any of the towns we have yet seen, as it has unoccupied lands and water for cattle, which none of the others have that we have seen; and the multitude of people who dwell in the other places is so great, that there is not a hand's-breadth of land which is not cultivated."

According to Cortez, the houses and gardens of the chief people in Mexico were fully equal to those of Spanish grandees. He describes with much detail his meeting with Montezuma, or as he writes the name Muteczuma, and tells how he took off his own neck a collar of glass diamonds, and put it on that of the Mexican chief—for Cortez never styles Montezuma king or emperor,—and received two golden collars instead of the glass. But here is a passage still more characteristic:—

"Six days having passed, most powerful Prince, since I entered the great city of Temixtitan (Mexico), and having seen some things in it, though but a few compared with what there was to be seen and noted, it seemed to me, judging from these things, and from what I had observed of the country, that it would subserve the interests of your Majesty and our own security if Muteczuma was in my power, and not wholly free from restraint; in order that he might not be diverted from the resolution and willing spirit which he showed in the service of your Majesty, especially as we Spaniards were somewhat troublesome and difficult to please; lest feeling annoyed on any occasion, he should do us some serious injury, and even might cause all memory of us to perish, in the exercise of his great power. It also appeared to me that if he was under my controul, all the other countries that were subject to him would be more easily brought to the knowledge and service of your Majesty, as afterwards actually happened. I resolved, therefore, to take him and place him in my quarters, which were of great strength; and revolving in my mind how this could be effected without occasioning any tumult or disturbance, I recollected what the officer whom I had left in command at Vera Cruz, had written me concerning the occurrences in the city of Almeria, which I have already related, and which, as he was informed, had all taken place in pursuance of orders from Muteczuma. Having used the precaution to station guards at the corners of the streets, I went to the palace of Muteczuma, as I had before often done to visit him; and after conversing with him in a sportive manner on agreeable topics, and receiving at his hands some jewels of gold, and one of his own daughters, together with several daughters of his nobles for some of my company, I then said to him, 'that I had been informed of what had taken place in the city of Nautecal or Almeria, and of the fate of the Spaniards, who had been killed there; that Qualpopoca alleged in defence of his conduct, that whatever he had done was in pursuance of orders from him, which, as his vassal, he could not disregard; that I did not believe it was so, but nevertheless, in order to clear himself from the imputation, it seemed to me proper that he should send for Qualpopoca and the other principal men of that city, who had been concerned in the slaughter of the Spaniards, that the truth of the matter might be known, and those men punished, by which means he would satisfy your Majesty of his loyal disposition beyond all dispute; lest instead of the rewards which your Majesty would order to be given him, the reports of these outrages might provoke your Majesty's anger against him, on account of his having commanded the injury to be done; since I was well satisfied that the truth was contrary to what those men had declared.'"

The offending cazique, Qualpopoca, was brought to the capital, as our readers are probably aware, and, with his followers, was burnt alive. Cortez tells this part of the story with much *naiveté*. "So they were publicly burned in a square of the city, without creating any disturbance; and on the day of their execution, as they confessed that Muteczuma had directed them to kill the Spaniards, I caused him to be put in irons, which threw him into great consternation." All this was manifestly done merely from the motives above intimated, namely, "to subserve the interests of your Majesty and our own security"; yet Cortez had some apprehension lest he might offend royal sympathies, and so, in respect of his demeanour towards Montezuma, he writes to the Emperor:—

"Such was the kindness of my treatment towards him, and his own contentment with his situation, that when at different times I tempted him with the offer of his liberty, begging that he would return to his palace, he as often replied that he was well pleased with his present quarters, and did not wish to leave them, as he wanted nothing that he was accustomed to enjoy in his own palace; and that in case he went away, there would be reason to fear the importunities of the local governors, his vassals, might lead him to act against his own wishes, and in opposition to your Majesty, while he desired in every possible manner to promote your Majesty's service; that so far he had informed them what he desired to have done, and was well content to remain where he was; and should they wish to suggest any thing to him, he could answer that he was not at liberty, and thus excuse himself from attending to them."

Cortez thus describes the original city of Mexico, which he soon afterwards totally destroyed:—

"This great city of Temixtitan [Mexico] is situated in this salt lake, and from the main land to the denser parts of it, by whichever route one chooses to enter, the distance is two leagues. There are four avenues or entrances to the city, all of which are formed by artificial causeways, two spears' length in width. The city is as large as Seville or Cordova; its streets, I speak of the principal ones, are very wide and straight; some of these, and all the inferior ones, are half land and half water, and are navigated by canoes. * * This city has many public squares, in which are situated the markets and other places for buying and selling. There is one square twice as large as that of the city of Salamanca, surrounded by porticoes, where are daily assembled more than sixty thousand souls, engaged in buying and selling; and where are found all kinds of merchandise that the world affords, embracing the necessaries of life, as, for instance, articles of food, as well as jewels of gold and silver, lead, brass, copper, tin, precious stones, bones, shells, snails, and feathers. There are also exposed for sale wrought and unwrought stone, bricks burnt and unburnt, timber hewn and unhewn, of different sorts. * * Every kind of merchandise is sold in a particular street or quarter assigned to it exclusively, and thus the best order is preserved. They sell everything by number or measure; at least so far we have not observed them to sell anything by weight. There is a building in the great square that is used as an audience house, where ten or twelve persons, who are magistrates, sit and decide all controversies that arise in the market, and order delinquents to be punished. In the same square there are other persons who go constantly about among the people, observing what is sold, and the measures used in selling; and they have been seen to break measures that were not true. This great city contains a large number of temples, or houses for their idols, very handsome edifices, which are situated in the different districts and the suburbs; in the principal ones religious persons of each particular sect are constantly residing, for whose use beside the houses containing the idols there are other convenient habitations. All these persons dress in black, and never cut or comb their hair from the time they enter the priesthood until they leave it; and all the sons of the principal inhabitants, both nobles and respectable citizens, are placed in the temples and wear the same dress from the age of seven or eight years until they are taken out to be married; which occurs more frequently with the first-born who inherit estates than with the others. The priests are debarred from female society, nor is any woman permitted to enter the religious houses. They also abstain from eating certain kinds of food, more at some seasons of the year than others. Among these temples there is one which far surpasses all the rest, whose grandeur of architectural details no human tongue is able to describe; for within its precincts, surrounded by a lofty wall, there is room enough for a town of five hundred families. Around the interior of this enclosure there are handsome edifices, containing large halls and corridors, in which the religious persons attached to the temple reside. There are full forty towers, which are lofty and well built, the largest of which has fifty steps leading to its main body, and is higher than the tower of the principal church at Seville. The stone and wood of which they are constructed are so well wrought in every part, that nothing could be better done, for the interior of the chapels containing the idols consists of curious imagery, wrought in stone, with plaster ceilings, and wood work carved in relief, and painted with figures of monsters and other objects. All these towers are the burial places of the nobles, and every chapel in them is dedicated to a particular idol, to which they pay their devotions."

These idols were soon precipitated from their pedestals, and images of our Lady and the Saints were set in their stead. The following we do not believe:—

"The figures of the idols in which these people believe surpass in stature a person of more than the ordinary size; some of them are composed of a mass of seeds and leguminous plants, such as are used for food, ground and mixed together, and kneaded with the blood of human hearts taken from the breast of living persons, from which a paste is formed in a sufficient quantity to form large statues. When these are completed they make them offerings of the hearts of other victims, which they sacrifice to them, and besmear their faces with the blood."

The Machiavellian character of Cortez is manifest in every page of his dispatches. He constantly avows his dissimulation and fraudulent intentions; policy was his sole morality, and his occasional frankness was but an artifice to entrap others. While he thus expounds his crafty schemes to the Emperor, are we to place implicit faith in all his representations? Certainly not. It is obvious that his object was to describe his success in the most glowing colours, to figure as one devoted to the Emperor and religion; as an invincible warrior, and beneficent ruler; and, finally, while claiming to have done wonders for the imperial treasury, to excuse himself at the same time for not remitting large sums to Europe. Mr. Folsom demands for him the praise of humanity to the Indians, but we believe that it would require no great research to disprove his claims on that score. Cortez names among the Indians who served with him, "one Istrisuchil, twenty-three or twenty-four years of age, of great gallantry, beloved and feared by all;" and there is reason to believe that this gallant follower of the conqueror is the identical Ixtlilxochitl who wrote in the Mexican language an account of the fall of Montezuma and destruction of Mexico, not by any means flattering to the humanity of the Spaniards, and which account has been translated into Spanish by Don Carlos Maria da Bustamente, himself of Indian descent.

The piety of Cortez has also been much eulogized, particularly by the best of his editors, Lorenzana Archbishop of Mexico; and, in truth, he showed much zeal in the destruction of Pagan idols; but, on the other hand, he had a leaning to the moral and economical institutions of Paganism, which the Archbishop, had he been aware of it, must certainly have condemned for its heretical tendency. Cortez, when at a loss for surplus revenue, bethought him that he could manage the tithes much better than the clergy. In fact, he proposed to the Emperor to vest the tithes in tithe-commissioners, for various uses; but this very bold and curious proposition deserves to be set forth in the words of its author:—

"The plan I would recommend is, that a number of religious persons, (or priests,) as I have already mentioned, zealous for the conversion of this people, should come out, for whom houses and monasteries should be erected in the provinces wherever it may seem proper; and that tithes be assigned them to defray the expense of building their houses, and for their support, the surplus to be applied to the erection and ornamenting of the churches in the villages where the Spaniards reside, as well as to maintain the clergy who officiate in them. Officers appointed by your Majesty should collect and keep an account of the tithes, and with them supply the monasteries and churches; for which purpose they will be more than sufficient, and a balance left for the disposition of your Majesty. Let your Majesty petition his Holiness [the Pope] to grant you the tenths of these parts for this purpose, giving him to understand the service rendered to God our Lord by the conversion of this people, which can be accomplished in no other way; for if bishops and other prelates are sent, they will follow the custom practised by them for our sins at the present day, by disposing of the estates of the church, and expending them in pageants and other foolish matters; and bestowing rights of inheritance on their sons or relatives. A still greater evil would result from this state of things; the natives of this country formerly had their priests, who were engaged in conducting the rites and ceremonies of their religion; and so strict were they in the practice of honesty and chastity, that any deviation therefrom was punished with death; now if they saw that the affairs of the church and what related to the service of God were entrusted to canons and other dignitaries, and if they understood that these were the ministers of God whom they beheld indulging in vicious habits and profaneness, as is the case in these days in Spain, it would lead them to undervalue our faith and treat it with derision, and all the preaching in the world would not be able to counteract the mischief arising from this source."

The English Universities; from the German of V. A. Huber. An abridged Translation. Edited by F. W. Newman. 3 vols. Pickering.

A history of the rise and progress of any institution must always be of interest: however humble its origin, however short its existence, it must have sprung from some mode of thought current among some portion of the society in which it took its rise, or from some want more or less felt in the community. If this be true of every institution, however lowly and short-lived, how much more must it be the case with those still surviving, still flourishing monuments of antiquity, the origin of which is veiled in the darkness of ages, which have watched over the birth and tended the infancy of a nation, have witnessed the rise and fall of dynasties, and have been at once, as it were, the harbingers and the result of civilization. Such institutions are those of which Professor Huber has offered us a history, and we take shame to ourselves that the first connected review of the rise and progress of the Universities of this land should be offered us by the industry of a German professor. We have indeed reason for gratitude, that while we are still unwilling to imitate the patient research of our Teutonic neighbours, we have grace enough left to avail ourselves of the produce of their assiduity, although not without a sneer at the plodding industry to which we owe at any rate almost every work which graces the library of the classical student, whose shelves are crowded with the labours of a Wunder or a Klausen, a Niebuhr, a Müller, a Ritter, or a Schlegel. But a truce to our complaints, of which we have good reason to doubt the efficacy.

Our author is of opinion that the Universities of Europe, as a general rule, either rose out of, or were adopted by, the Church, ever active and ready, in the middle ages, to mould and fashion the minds of nations, and take them under her especial tutelage. The only exceptions which Mr. Huber makes are those of Italy, as Bologna and Salerno, where the eminently practical studies of medicine and jurisprudence prevailed, to the almost entire exclusion of theology and dialectics, the studies most patronized by the Church. The Universities were at first governed and actually taught by a Chancellor, who, however, gradually delegated his office to others, to whom he gave a licence to teach, and who, if actually employed in teaching, became the Magistri Regentes, the regent masters, of whom, in a somewhat different sense, we still hear in our modern Universities. By degrees the Chancellor gave up even his right of examining and granting licences, which power fell to the teachers themselves, and became in some cases an episcopal officer, unconnected with the Universities, and in others a merely nominal head of those bodies.

The division of the students out of the lecture room into nations, as they were called, took place very early. The origin of this arrangement and the time when it commenced are unknown, but in the middle of the thirteenth century we find the system in full operation. Each of these nations elected officers called the rector and proctors, to superintend them, of which the rector afterwards became the one head of all the nations, and of the body of teachers or regent masters. Indeed, it is doubtful whether the rectors ever were the governors of the individual nations alone: most probably they ruled over the collective body of teachers and scholars. The title of Baccalaureus, or bachelor, up to the end of the twelfth century, denoted merely a scholastic, afterwards it became an academic degree, a pre-requisite to that of Master or Doctor.

In order to understand the rise and progress of the various studies, we must premise that in the early centuries, there were two courses, called the Trivium and Quadrivium. The Trivium included grammar, logic, and rhetoric; and the Quadrivium, arithmetic, geometry, astronomy, and music. Out of the logic and rhetoric grew speculative theology and philosophy. The four sciences of the Quadrivium were gradually degraded into mere preparatory studies for the faculty of arts, which was at first the faculty into which all the other studies were absorbed. The introduction of canonical law first gave the theologians the opportunity of establishing a theological faculty distinct from that of arts. The masters of arts were so completely the ruling body that they took the title of Universitas Literaria, while the teachers of law and medicine were considered under the head of Facultates. Gradually, as the deans of the faculties became united with the rector and proctors in the government of the nations, there arose a new *Universitas*, formed out of the old *Universitas* and the faculties. One governor now ruled alike over schools, faculties, and nations: the authority became more centralized, the colleges, and hospitia, or inns, where the students lodged, of which a vestige remains in the New Inn Hall, still existing in Oxford, fell under the power of the governing body of the University. Contemporary with these changes was the claim made by these academic bodies to be exempt from common jurisdiction, which drew so strong a line of demarcation between the University and the people among whom it was settled, and brought on the sanguinary contests between Town and Gown.

Professor Huber is of opinion that the antiquity of Oxford has been undervalued, and is even ready to allow the tradition which connects it with King Alfred. The conflicts of petty Saxon princes and the desolating invasions of the Danes had done much to dim the light which the exertions of Gregory introduced into England. Alfred is pointed out by tradition as the restorer of learning, and the names of Plegmund, Werfrith, Asser, and Johannes Erigena, are but a few of the numerous men of learning whom he is said to have invited over from the Continent. The point in question is whether, in these days of reviving learning, Oxford was one of its chief seats. This Professor Huber answers in the affirmative:—

"No *other* place is authentically named. The story given in the biography of Alfred, by Bishop Asser, explicitly tells of scholastic institutions at Oxford, not only in his day, but as far back as the fifth century. This absurdity has led to the conviction, that the passage is not authentic: yet we may inquire, whether all of it is an interpolation or a part only. My own mature judgment is that the beginning and end are authentic, in which are narrated the contests of the Schoolmen, and the efforts of Alfred to reconcile them. The intermediate part is very awkwardly interposed, and (I think) was interpolated in order to pretend the yet greater antiquity of these institutions. Beside this testimony (in itself assuredly unsatisfactory), we

have other proof that before the Norman Conquest Oxford was a seat of learning: and we find in Oxford itself internal marks of some other origin than from Abbey or Cathedral schools. We have testimony that the Anglo-Saxons partook in the scholastic movement of the eleventh century; many of them, indeed, are named as frequenting the celebrated school of the monastery of Bec in Normandy. The political intercourse of England with Normandy, and the extent of British commerce, made this inevitable: and though the only passage in which Oxford is *named*, (viz. by Ingulf, the Conqueror's Secretary,) is not beyond suspicion; it has never yet been attacked. The oldest authentic accounts of Oxford lead us to believe, that its schools are earlier than the Norman Conquest. That scholastic streets (*School-street* and *Shydiard-street*) existed there in the year 1109, is clear from old documents quoted by Wood. A scholastic population must have filled them; and we can hardly allow less than from twenty to thirty years, for the gathering of such a population and erecting of the streets. Now this takes us back just to the horrors of the Norman Conquest and its immediate consequences. None can choose such a date as the conceivable origin of the system: we are forced to carry it higher. We then fall back on the Saxo-Danish period, and on the time when Ingulf is said to have studied in Oxford. Granting that this is the first notice of the system, it is unreasonable to infer that this was its beginning. Indeed even at a later period, it is seldom enough that the Chronicles are led to name the Academicians. Now considering what times preceded the Conquest, we may be sure that at most they would barely sustain existing schools. No reign nearer than Alfred's was likely to originate them. Thus whatever we know at all,—by tradition, by documents (suspected or unsuspected,) or by the evidence of general probability,—converges to the same result,—that the Oxford Schools are as ancient as King Alfred."

This, we admit, is not conclusive; but the evidence amounts to a high probability, and is backed by the tradition handed down since the thirteenth century, of one college in Oxford, University College, which claims King Alfred for the founder. The Chancellor in Oxford was an episcopal one, appointed by the Bishop of Lincoln, in whose diocese the town was situated, while in Paris the Rector, who filled a similar office to the Chancellor, was a creature of the University. It was thus that, in proportion as the Church grew, the Chancellor increased his authority, and thus gave the English Universities that extension of rights which distinguished them from those of Paris and other places. Cambridge is said to have been first patronized by the monks of Croyland, a place thirty miles north of it. A farm called Cottenham, near Cambridge, and afterwards a barn in that town, were the germ of that University which has since spread its name and fame over the civilized world. Cambridge was in its growth in all respects similar to Oxford, save that she was for a long time subject to the authority of the Prince Bishop of Ely, while Oxford was emancipated from episcopal government in the fourteenth century. Of the University revenues Mr. Huber thus speaks:—

"In the whole earlier period, the University-Corporations had been populous and poor. By fees, contributions, impositions and donations, money came slowly in: legacies were rather more productive. Their slender funds, lent out at moderate interest to their own members, yielded a scanty income: but it is remarkable that as yet the University had none but *rented* buildings, and little or no land. They were miserably supplied with Public Rooms for scholastic uses; as nothing of the kind appears to have been University-property. An ill-defined right in Saint Mary's Church was gained by lengthened use. There, or partly in the Church of Saint Frideswide, were kept the monies, treasures, books and deeds of the University: afterwards, the handsome rooms erected by several orders of monks proved a great convenience, being rented occasionally by other teachers. Endowments of course did not exist: every teacher was left to find his own level, and (as we have seen) he generally dwelt with his pupils in the same Hall or Inn. Their food, and other expenses, were defrayed in common: but in the *Disciplina Scholarium* (Ed. of 1496) it is hinted to be convenient, that the scholars relieve the Master from the trouble of all such provision. But meanwhile, the various monkish societies domiciliated in Oxford possessed some landed property, and hereby stood on a different footing; nor is it easy to explain their relation to the University, which was indeed a contested point. Any-how it is clear, that this state of things was essentially democratic."

The nations in Oxford were only two—the Northern men and Southern men, whose feuds frequently disturbed the peace of the University, and who only united to molest their common enemy, the townspeople. The two proctors were elected by the nations till 1626, when the right lapsed to the colleges, and continues theirs till the present time. One of the causes of the riots, with Professor Huber's comments thereon, will surprise the reader. We must remind them that at a time when Oxford was the centre of England, these riots were of no small importance, as is testified in the monkish rhyme, quoted by Wood, thus translated by Mr. Newman:—

> "Thus old story says:
> From our Oxford frays,
> After few months and days,
> All England's in a blaze.

"About the end of the twelfth century, the conflicts of Realism and Nominalism began, but they rose into full vigor under the patronage of Duns-Scotus and Occam, in the first half of the fourteenth. The Northernmen declared for their Countryman and his Realism; the Southernmen sided with Occam and his Nominalism. Wyckliffe also, who soon became celebrated, was a North Countryman and a Realist, but it would be far too precipitate to connect Realism with the Reformation *generally*. We only assert, that at *that* period both Realism and Reformation found favor chiefly with the Northernmen; and that the two causes may in *their* minds have been somehow connected. The author believes also, that the Germanic spirit, being prone to Ideology (as Napoleon remarked,) has also in it a certain spiritualism that tended to Protestant views. But all this is said with diffidence and under correction. Any-how it will not be questioned that there is a close sympathy between the Germanic mind and Protestantism, between the Romanic mind and Roman Catholicism; nor is it a mere fancy, to believe that this very controversy was deep at work in the University of Oxford, at a time when none understood the full meaning of their strife. Even at a later period, when all England was decidedly Protestant, as contrasted with the great Southern Kingdoms, the Northern part of England was pre-eminently Protestant as compared with the South. Indeed at the end of Elizabeth's reign, after methods so stringent had been used to suppress the weaker party in the Universities, and so great an internal revolution had passed upon them, we find the contest of Northern and Southernmen renewed, at the time when the Puritan controversy was rising into strength. It is remarkable how much underhand countenance Presbyterianism received at Oxford, (as will hereafter be stated,) even when professedly in disgrace. The distinction of *races* has vanished in the nation at large, and *political parties* have taken their place. We may however remark that Whiggery is of Scotch (or Germanic) origin; while *Toryism* had its strength in the South. The Southern element still prevails in the Aristocratic and High-Church spirit, and in the *old-fashioned* classical studies of the College system; and that this system is truly Romanic, may easily be proved by comparing it with the Universities of Spain, which have suffered least disturbance in recent centuries. The Northern system, driven out of Oxford, took refuge in Edinburgh, the Athens of the North, where everything reminds us of the German Universities and of the German developement of the Reformation. The main strength of the *Liberal* intellectual developement in the last half century has come from Scotland and the North. That is ever the sent of the animating spirit, though the material power which ultimately works out the results will be found in the populous and wealthy South; whether in the seventeenth or in the nineteenth century."

Some of the riots were more serious than those who know them only by a modern "Town and Gown row" would imagine. Professor Huber gives an account of one in 1355 against John Bereford, bailiff of the city, compiled from the chronicler of Oxford, Antony à Wood:

"The causes of this outbreak may be traced back to the year 1349, in which a dreadful plague ravaged all England. It carried off or dispersed all the Oxford scholars, so that the studies were intermitted for three years; after which not one third of the former number reassembled. Meanwhile many buildings, before let out to the academicians, were applied by the citizens to other purposes: the police was exercised by the Town Authorities, undisturbed by University claims; which, upon their renewal, must have appeared doubly oppressive. In fact, the Chancellor had no physical power to enforce them. If the townspeople closed the market gates upon him, he was unable to force his way in, to inspect the bread and beer. If a citizen chose to sell or let to others a Hall which the academicians had previously tenanted, it was in vain for them to plead treaties and privileges, when the door was shut in their face. Bereford and his party were also strengthened unintentionally by that excellent king, Edward III., the great patron of the Universities. In the wide-spread crime consequent on the plague, the Academic Authority was not vigorous enough: the King, perhaps for this reason, at Bereford's representation, issued ordinances for the arrest of criminals by the Mayor and Sheriff; a proceeding which, however needful, broke through the University privileges, and gave dangerous weapons into the hands of its enemies. So intense was the bitterness of feeling generated between the parties, that an explosion soon followed, for which Bereford, it seems, was well prepared. A quarrel arose on St. Scholastica's day (February 10th) in the year 1355, between certain scholars and the host of a tavern which belonged to Bereford. The scholars thought the wine bad; and as the host only answered by ill words, they broke his flasks about his head. The tavern-keeper called for help. Speedily (as if all had been preconcerted) the Town alarm-bell was rung from St. Martin's Church: armed citizens assembled, and fell upon the scholars who were walking unarmed and unsuspecting in the streets. The Chancellor in vain, and at the hazard of his life, entreated the townsmen to keep the peace; at last he ordered the bell of St. Mary's to sound an alarm, and call the scholars to arms. They had taken to flight at the first surprise; but they now rallied, and offered so stout an opposition, as to keep their adversaries in check that night. In the morning, the Chancellor's efforts at pacification were again frustrated by the determined hostility of the Town; and it appeared that the scholars would be murdered, if they did not stand on their defence. Though so inferior in numbers, yet by great exertion they succeeded in seizing the gates, to prevent the entrance of the country people;—a measure of traditionary tactics. But towards evening, about two thousand armed countrymen burnt down the West Gate, and forced their way in, headed by a black banner, with a wild cry of *Murder* and *Plunder*. The scholars, borne down by the torrent, fled into the open country, into their churches or into their private rooms. But the savage mob, that night or next day, stormed most of the Colleges and Halls, and hunted-out the inmates. Those who could not escape were killed, wounded, thrown into the sinks and sewers, or dragged to prison. All their property was destroyed or plundered; after which the mob began to carouse, and abundance of drink inflamed them to still madder deeds. Crucifixes and church ornaments were demolished; students shaven as monks were treated with peculiar cruelty: the scalp was actually torn off the head of some. No holy place was respected. In vain did the more popular of the clergy carry the host along the streets in solemn procession. Monks were seized or maltreated at the foot of the cross or chalice. In short, *forty* scholars or masters are recorded by name, as having been killed in this fray; but these, without a doubt, are but a fraction of those who suffered. As soon as the storm began to subside, and the rabble to decamp with their booty, the more prudent citizens assembled to prevent further mischief. The Town-Authorities also met, with a few of the more eminent Academicians, who had sent to demand

assistance from the Bishop of Lincoln and from the King. The former issued an interdict against the Town, and the latter pursued measures, at first equally vigorous. Less energy however appears in their after-proceedings. Perhaps upon examination, the King found the blame to be more equally divided between the parties, than was supposed in the first moment of wrath against so brutal an abuse of victory. At any rate it was clear, that the scholars had begun the fray; and there must have been plentiful ground for crimination against them. That the Town-Authorities had misconducted themselves, does not appear; but the Sheriff of Oxford was displaced by the Royal Commissioners, which may seem to imply that the fault was in a different quarter. There is also ground to believe, that the very intensity of this savage contest gave rise by reaction to feelings of a far more honorable and Christian nature. Terror, grief, repentance and a feeling of helplessness and misery, seem to have driven all the more baneful passions into the background. Both parties were humbled at the common guilt, distressed by the common suffering; and such feelings were widely shared by the nation at large. The whole affair assumed a public importance, and no one was concerned so much to recriminate or retaliate for the past, as to reconcile and prevent for the future."

In consequence of this riot Edward III. remodelled the laws both of the University and the town, and gave the former that preponderating influence which it has since retained. The rise of the fellowships as permanent property is thus described:—

"The earliest *Colleges* were by no means intended to afford their members a permanent maintenance, but to assist clerical students through their course of study, which might last from ten to fifteen years. But when this time was completed, and no promotion opened to them, could they be turned out into the streets and consigned to want and misery? It was against nature to enforce such a thing. In the older Colleges the practice gradually established itself, (though it was looked on as a necessary evil,) that the *Fellows* retained their stipends until they obtained some benefice: and this became the understood or expressed rule in those of later foundation. As then, in the political tempests of the fifteenth century, nearly all other stipends disappeared, and the whole academic population diminished, the College-Fellows became gradually the actual stem of the University. The pecuniary support which they received, gave them a fixed hold on the spot, and as they generally became Masters, and in fact, applied themselves to the business of teaching, they naturally succeeded to the authority of the ancient Teacher-Aristocracy. The academic life was indeed but little quickened by this means, yet it was kept from dying out entirely. It may be hardly needful to add, that the relationship of the Fellows to their College, quite preponderated over that which united them to the University or to their Pupils."

Their wealth was, however, not very great—

"Assisted by the endowment, the *Fellows* of the Colleges lived on through the hard times; yet even they had but the barest necessaries of life, and these not always. Moreover the rules prescribed by the College discipline for study and devotion left but few hours for sleep, food, and recreation. It is indeed clear enough from what we have said above of University, Merton, and Balliol Colleges, that it was not the object of the earlier Colleges that their members should live in pleasure and luxury. Even the richest establishments—such for instance as New College—gave no more than from ten to twelve pounds yearly to each Fellow. The annual revenues of this College were reckoned in the time of Henry VIII. at eight hundred and eighty-seven pounds (v. Chalmers), and that of Balliol College at seventy-four pounds. Those of the others lie for the most part between the two. Bitter complaints were made before Parliament by the Fellows of University College, respecting their distress and want, occasioned by the maladministration of their revenues by the Head of their College. (v. Rol. Parl. iii. 69.) A lively picture of the very frugal circumstances of the Colleges at the beginning of the sixteenth century, containing more special details of what is intimated in general terms by earlier testimony, is to be found in a manuscript written by a scholar of St. John's College, Cambridge; in which, after many bitter complaints of the general distress, he proceeds [in Latin]:—'The greater part of the scholars get out of bed between four and five o'clock in the morning: from five to six they attend the reading of public prayers, and an exhortation from the Divine Word in their own chapels: they then either apply to separate study, or attend lectures in common, until ten, when they betake themselves to dinner, at which four scholars are content with a small portion of beef bought for one penny, and a sup of pottage made of gravy of the meat, salt, and oaten flour. From the time of this moderate meal to five in the evening *they either learn or teach*, and then go to their supper, which is scarcely more plentiful than the dinner. Afterwards problems are discussed, or other studies pursued, until nine or ten o'clock; and then about half an hour is spent in walking or running about (for they have no hearth or stove) in order to warm their feet before going to bed.' It is not very clear, it is true, whether this account includes those on the foundation: but even if, in what is there said, we comprehend only the pupils who bore their own expenses, it gives us a standard to judge the whole by. The difference between the manner of living of the Fellows and of these pupils, was certainly not very great. From Erasmus we learn that the Fellows drank beer, not wine. His letters from Cambridge depict much external meanness there: indeed Oxford appears already to have gained a start of Cambridge in these matters, which until recent times she kept. In more prosperous days we may admit that the Colleges had more to eat and drink, and possibly a fire in the chimney; but no one who considers the above, will imagine them ever to have had luxuries; while, how matters stood at a still earlier time, Chaucer's description of an Oxford clerk may show."

Our space will not allow us to follow Professor Huber through his account of the gradual progress of the studies, and the rising authority and increasing income of the colleges. We can only say that he has executed his task with care and ability. Mr. Newman's translation is clear and vigorous, and his preface manly and tolerant. We may be induced at some future time to examine briefly the opinions advanced by the author and his translator, with reference to the laws and manners of our Universities. At present we must content ourselves with remarking, that we should be inclined to agree with Mr. Newman in much that he says. The plates by which this edition is illustrated may convey some little idea of University manners and customs to a foreigner, but we cannot commend them either for beauty or accuracy. For example, we are introduced in one picture to Oxford students walking in their caps and gowns, *with sticks in their hands*. Now, however trifling the objection may appear, it is of force when we remember the purpose for which the engravings are given, and therefore we shall observe that no student, except the freshest of *Freshmen*, is ever seen in cap and gown, with a stick in his hand; and the proctor addressing them is walking the streets with his ermined hood on—a thing unheard of in Oxford. Nor can we comprehend what idea an engraving of a young man on horseback or playing at billiards can give, in addition to the plain statement that under-graduates do occasionally commit these enormities.

Austria. By J. G. Kohl.

[Second Notice.]

WE return to Mr. Kohl with pleasure. His joyous temperament, which leads him to see, in almost every case, the bright side of things, renders his travels invariably attractive. We resume our extracts with the following market scene in Vienna:—

"The most celebrated of all the women of Vienna is, beyond doubt, Maria Theresa, but the most noted are the so-called 'Fratschelweiber.' Like their sisters in the cabbage-market of Königsberg, and the Halles of Paris, they are distinguished for their eloquence, their presence of mind, and their inexhaustible wit. It is said that the emperor Joseph went once incognito among them, and purposely overturned a basket of eggs, in order to have a specimen of their oratorical powers. Their chief seat is in the 'Hof,' one of the largest squares of the city, where they deal in vegetables, fruit, cheese, and other articles of food. * * I must confess, that often when I returned from the 'Fratschel' market I used to feel as if I had been in a mad-house, so incessant and clapper-like had been the chatter about everything in and about the world—about the '*Germnudeln*' which they were recommending to Herr *von* Nachtigall, an old hairdresser, whose poverty shone out from every side of his worn and rent nether garments, but on whom they bestowed the '*von*' nevertheless, because he held a few kreuzers in hand; about the butcher, 'the stingy hound, who had sold them such a miserable little bit of meat to-day.' They spared neither the emperor, the pope, nor their ministers, and, least of all, the people of rank and fashion, whom they saw driving about. I was one day witness of the little ceremony used with the latter. At the corner of the 'Hof,' a careless coachman ran over a boy. In an instant a crowd of women and men were in full pursuit of the flying vehicle, in which sat a lady and gentleman of the higher class. But the Fratschelweiber paid not the smallest heed to their high nobility. 'Catch 'em there, bring 'em back, the quality candle-snuffers! bring 'em back! the scum of a dunghill! To run over the poor boy!' were the compliments that ran from mouth to mouth, as the mob ran bawling after the gentles, who would probably have fared ill enough, if they had fallen into the hands of the irritated rabble. This class of persons in Vienna are by no means the patient, respectful, timid herd to be met with in other capitals of monarchical states; for example, in St. Petersburg, Moscow, Prague, &c. The child, whose cause was so energetically adopted by the Fratschel women, was not even a countryman, but a little Croat, such as are met with in all parts of Vienna, selling radishes and onions. Beyond a bruise or two he had sustained no injury; indeed, he had rather been knocked down than run over. The women put on his broad-brimmed Croatian hat again, wiped carefully his wide mantle of thick white wool, in which he looked like a diminutive Orlando in a giant's armour, and bought some of his radishes to console him. The child, who understood not a word of the Fratschel jargon, looked round him in a scared manner, and then resumed his monotonous cry, '*An guten ratti, ratti,*' (good radishes,) the only German he knew. These Croats are very numerous in Vienna, and form no inconsiderable portion of the populace there. As they sell nothing but onions and radishes, the Fratschel ladies are persuaded that Croatia must be a poor country, and produce nothing else. In the suburbs, there are, in the public-houses of the lowest class, great dormitories for them, which they call Croat quarters. There, when the ravens return from the fields to Stephan's tower, the poor Croats huddle together after the fatigues of the day, and sleep in the same thick cloaks that have sheltered them from the heat during the day. 'They live like so many cattle,' said one of the Fratschel women to me; 'they haven't even a bedstead, let alone a mattress. They lie o'nights and holidays on their bellies, and are fit for nothing but to sell onions.'"

The Viennese are a poetical as well as a gay race, and their amusements partake of a somewhat Oriental tone. Mr. Kohl thus describes some of their gay doings:—

"The Vienna people are like great potentates, who will admit wisdom only disguised in the motley; but they have reflection enough to recognise the hand of destiny that mingles in the most insignificant occurrences of life. Therefore they will drink their coffee in the temple of the Muses, and swallow the bitter draught of truth sweetened with the sugarplum of cheerfulness. Hence the extraordinary dramatis personæ of Raimund's invention, the Sibyls as old maids, the Genii as bowling-green attendants, the conjurors and magicians from Warasdin and Donaueschingen, who pour forth unwearied trifling jests and sportive wisdom in Swabian and Hungarian German. The titles of Raimund's pieces and their prevailing style are pretty well known amongst us, not so the style in which the proprietors of places of public resort invite the public to their enchanting

popular festivals. I paid at first little attention to the announcements with which every corner of the streets was covered. But one evening late, *i. e.* at eleven o'clock, at which hour Vienna is as still as a mouse, I met a man laden with an enormous mass of printed paper, busied in pulling down the old bills and pasting up new. I asked him to let me look at some of them, and he threw down a whole bale before me. Herr Lanner announced a fête with new decorations and illuminations, under the name of 'A Summer Night's Dream.' Herr Strauss had found a yet more attractive title for another fête, which was to take place at Sperle. By the glimmering light of the lantern I read 'Fancy and Harmony in the rose-tinted vestments of Joy, a rural flower festival and ball.' On a third bill, the 'renowned Daum' promised a 'Festive soirée and conversazione in his Elysium.' Four characteristic bands were announced in the various localities, and further, 'the much admired original representations newly arranged for the present season,' would take place as follows:—In Asia (one part of the gardens) would be displayed three saloons, brilliantly illuminated in the oriental taste; an avenue of palm trees as a promenade, adorned with the newly-invented transparent Iris garlands; and at the end the splendid principal view, giving an allegorical picture of Asia, beyond which the musicians would be heard but not seen. In elegant Europe (another part of the gardens), a Roman triumphal arch would be changed in a moment to an amphitheatre, wherein the Olympic games were to be produced in appropriate costume. In America (a lawn) would be performed the admired Railway passage to Australia, led by the gracefully adorned ladies and gentlemen, Apollo, Pluto, Diana, and Minerva. In Africa (a fourth part of 'Elysium'), beside many favourite performances, Herr Starsch, from Berlin, would have the honour of exhibiting many new feats of dexterity, and, in the splendidly decorated Harem, an African summer fête would be given. As a souvenir of this conversazione, every lady would receive, 'in a festive manner, two views of Elysium,' with an explanation. For the greater gratification of the respected visitors, the atmospheric air would be impregnated with the newly-invented Schönbrunn flower perfume. I believe that not in India itself could a fête for the multitude be announced in more pompous fashion. I noticed many others announced, as 'Nights in Paradise,' 'The Dance of the Sylphs,' &c. Each surpassed the other in high-flown fancies. The chief allurements to all these places are dancing and good music; and the proprietors endeavour on such occasions to procure some new compositions of the favourite composers, Lanner, Strauss, or Fahrbach, composed expressly for that evening. This music has generally some very striking title. A new waltz of Strauss's was called the 'Electric Spark,' another the 'Evening Star,' a third 'Tears of Joy.' Musical soirées and 'Harmonious pictures' are almost always united with these fêtes; and how far the composers of Vienna go with their 'harmony painting,' may be seen from the following specification of such a 'painting' produced when the archducal conqueror of Saïde was the hero of the day. 'Storming of Saïde (a new musical picture). First Part: Approach of the English fleet. Second Part: Approach of the Austrian fleet. Third Part: Characteristics of the Allies, and the Enemy. Fourth Part: Summons to surrender, refusal, disembarkation, attack, cannonading, bombardment, storming and conflagration. Fifth Part: Joyful demonstrations and thanksgivings of the Victors. Sixth Part: Celebration of Victory and triumphal march.'"

Before leaving Vienna we must extract the life-like description of a Sunday promenade:—

"The workday and morning tumult had quite subsided, the constant '*Ho! ho!*' of the hackney carriages, and the '*Auf!*' of the car-drivers were silent, for 20,000 of the inhabitants of Vienna were rolling over the newly-opened railway to the newly-discovered Paradise of Stockerau; and 20,000 were flying by the Raab road to Mödling, Baden, and the other valleys of the forest of Vienna; 50,000 more were gone into the country for the summer, and another 50,000 were gone after them for the day, to forget the troubles of the week in their society. Another not less respectable number of citizens and citizenesses were scattered over the gardens of the suburbs, the Prater, and the meadows, and thus I remained in possession of the inner city, with a remnant of lackeys, beggars, and sick; the Turks might have attacked and taken it at that moment with ease. The domestics were lounging before the doors and conversing with their opposite neighbours; the maids were chattering in the inner courts; the coffee-house of the 'Orientals' was still full of company, for they were scarcely likely to approve of our way of keeping Sunday. In the cathedral of St. Stephen, a few old women were telling their rosaries, and screaming their devotions through the church; and one grating voice among them, louder than all the rest, repeated, at the end of each verse, 'Holy, holy, holy!' In the courtyard of one house into which I looked, I saw a little boy reading prayers aloud from a book. He told me that he was eight years old, and that he did this every Sunday. I took his book, and saw that he was reading the gospel of St. Luke, from the ninth to the fourteenth verse. He said it was the gospel for the day, and that many boys in a similar manner read the gospels on a Sunday before the houses of Vienna. When he had finished, there descended on him, from the upper stories, a grateful shower of kreuzers wrapped in paper. In the usual tumult of the town, I had overlooked many smaller elements of the population, which I now discovered for the first time, as some inhabitants of the waters are perceived only when the tide has ebbed. I noticed, for the first time, the people who hawk Italian and Hungarian cheeses about the streets. They are chiefly from the neighbourhood of Udine, and also sell Italian macaroni. The greater number could speak as much German as they found necessary for their street traffic. There are in all not less than thirty thousand Italians in Vienna, and the passenger is not unfrequently accosted with, '*Poveretta! signor mio! la carita!*' Beggars should, out of policy, always speak a foreign language; it excites far more compassion than the language of the country. Going farther, I found a man standing before a baker's shop, occupied in scolding a little maidservant. She was a Bohemian, he told me, and added, 'That Bohemia must be a very poor country—every year there come thousands of them to Vienna—men and women, maids and boys. They learn as much German as they must, seek a service somewhere, are very moderate in their demands, will put up with a bed in the stable, or on the floor, and when they have earned a few florins, they go back to their own country.' In fact, if we inquire of a hundred people we meet in Vienna what country they are from, the answer of twenty, on an average, will be, '*Ich bin ein Behm*' (I am a Bohemian). The whole number of the Slavonians in Vienna is, it is said, about 60,000, and of other Non-Germans 100,000. In the highest circles as the lowest, the foreign element mingles everywhere. The number of Hungarians is reckoned at 15,000; but of these many are not genuine Magyars. * * At last I came to the end of the city, and went out upon the Glacis. Here seemed to be gathered together all whose legs were too short to gain the open country beyond the extensive suburbs of Vienna. It was the part called the Water Glacis, where there is some gay music every afternoon; numbers of little children with their nurses were lying and playing about the grass, and several schools under the guidance of their masters were doing the like. Some of them had pitched a tent in one of the meadows near which they were diverting themselves. There is no other city in Europe where the children have such a playground in the very heart of the town. The benches were bare of other visitors, with the exception of one solitary Turk seated among the children. He was taking his coffee, and dividing the '*kipfel*,' that had been brought him with it, among the sparrows, which are constantly flying in numbers round the Glacis. I sat down by him to share in both his amusements, and remarked a trick of the sparrows that I had never before noticed. Some of them were so greedy, that they kept fluttering in the air about us, and sometimes snatched a morsel of bread before it could even reach the ground, where the others were eagerly picking up the scattered fragments. Like a polypus turned inside out, the inner life being displayed externally, the dead exterior skin turned within, even so is the life of Vienna reversed on a Sunday. The swarms that on other days are driving and bawling in the streets and public places in the city, are then singing, dancing, eating, drinking, and gossiping in the houses of public entertainment without. All this humming and drumming was so little in unison with my idea of a Sunday walk, that I was glad to take refuge from the noise in a place I was sure of having more to myself on a Sunday than any other day—the flower-gardens and churchyards. Beethoven's monument stands in the Währinger cemetery. His simple family name is inscribed in gold letters on the stone; but of late the growth of a bush planted near it has almost overshadowed the letters. I asked the sexton why he did not cut away the boughs that the name might be more plainly seen; he said the friends would not allow it to be done."

The fair at Pesth gave Mr. Kohl an opportunity of hearing the noted gipsy music of Hungary. The scene was a dancing-booth, where meals of all descriptions—*déjeuners, diners,* and *thés dansants*—were furnished:—

"The company was wholly composed of peasants; and the narrowness of the space in which they moved was compensated amply by their zealous endeavours to make the most of it. They lifted up, swung round, let go, and caught up again, their fair ladies, in a most vigorous and praiseworthy style; and the noise of stamping equalled that of a hundred threshing-machines. The heat was overpowering, and the dust suffocating; for, besides what was raised by the toils of the dancers, clouds came in at the open doors and windows, from the fair outside, where herds of cattle were moving in all directions; and the sensations occasioned by heat and dust were not diminished by the clangour of the gipsy musicians, with their trumpets and cymbals. Throughout Hungary the musicians are almost exclusively either Germans or gipsies; as the Hungarians themselves have in general little taste or talent for music. I do not mean that they are absolutely insensible to harmonious sounds, for what people ever was? but I speak only of the comparative susceptibility, and of their practical musical talents. The German musicians of Hungary hold, of course, the highest rank, and are met with in the principal theatres and churches, at the balls of the upper classes, and in the first-rate hotels; but the gipsies fill the lower appointments, such as those in the small theatres, and in the smaller towns they are the sole professors of the art. The Germans in general play none but German, French, or Italian music; but the gipsies the true national compositions of Hungary, which breathe a peculiar spirit, and are distinguished by certain original turns and phrases, which I never remember to have heard anywhere else. There is, however, a strong resemblance between all these Hungarian gipsy melodies, and it is easy for any one who has heard one of them, to recognize others. Among the Tatars, also, at least among those of the Crimea, the gipsies are the usual musicians; I had often heard them there, but could not recollect enough of their music to know whether it resembled what I heard in Hungary. I could easily understand the partiality manifested by the people generally for this music, for there is something in its character so wild and impassioned—it has tones of such deep melancholy, such heart-piercing grief, and wild despair, that one is involuntarily carried away by it; and although, on the whole, the performance of the gipsies is rude and wild, many of them manifest so much of real musical inspiration, as may well make amends for their deficiencies in scientific culture. There are several gipsy bands which are celebrated throughout Hungary, and some of the patriotic journals even cite with rapture some performers of the last century. Anecdotes are also often seen in these papers tending to exalt these gipsy favourites above their more renowned brethren of the divine art. Thus, for instance, we are told of some pieces of Beethoven having been performed on a certain occasion, and received with immense applause, when some gipsy musicians entering, and playing some simple 'Magyar Notas,' the whole assembly was silent, and melted into tears. Even the German performers are sometimes compelled to learn some of these 'Magyar Notas,' with which they will often conclude, in order to leave a favourable impression on the minds of their audience, and '*Egy Magyar Nótát* (now play us something Hungarian), is a common request at the close of more elaborate foreign

compositions. There is, however, much monotony in this, as in all other national music; and the more cultivated even of native auditors are glad, after a while, to return to the greater variety and intellectual richness of our German compositions."

At Pesth, Mr. Kohl visited the bridge now constructing under an English architect, and which, as it seems, is to introduce a little English liberty:—

"Another difficulty by which the subject of this bridge was brought before the diet, consisted in certain privileges of the nobility which it would be necessary for them to renounce. The whole body of Hungarian nobles, namely, have been hitherto entitled to pass either on foot or horseback over the Pontoon bridge, without paying the toll demanded of all unprivileged passengers. Baron Sina protested against any such exemptions in the case of the new bridge, and refused to advance the sum required, unless all persons whatever were subject to the toll. The said privilege, however, is so intimately connected with that of passing free over all roads, bridges, and highways of the kingdom, and finding, 'I am a nobleman,' accepted at all turnpikes instead of a certain amount of kreuzers, that the privileged orders dread of all things an attack upon this right (or wrong) as the first breach in their grand aristocratic circumvallation. Many of them, therefore, refused long and obstinately to make this concession; but their resistance was at last overpowered by the exertions of more liberal men, and the undertaking fairly commenced. The first shot has been fired, therefore, but it will be long yet before the breach is sufficiently widened. For my own part, I own I could not witness without disgust the exercise of this petty but insolent privilege at the old Pontoon bridge. Let the reader imagine a row of mustached fellows, most of them (alas) speaking German, opening their barrier not only to every noble, but, according to a custom which has slipped in, to every well-dressed man, and seizing by the arm, and rudely demanding the toll of every poor working mechanic, every Jew or peasant boy that passed. These bridge-guards, by long practice of their trade, have acquired such a lynx-eyed dexterity, that even on Sundays and holidays, when the mechanic is often as elegantly dressed as the noble, they are never deceived. They know by sight almost all the inhabitants of Pesth and Buda, as well as their children and the inmates of their houses, and can tell in a moment who does, and who does not, belong to the privileged orders. The rich Jews generally pay a certain sum yearly to avoid the annoyance of being stopped whenever they pass; and I have been informed, that, curiously enough, the gipsies enjoy the same exemption as the nobles. '*Les extrêmes se touchent*,' or they are perhaps regarded as such complete nullities in society, that they are allowed, like the free commoners of nature, the birds, to fly in and out as they please. I cannot conceive how it happens that the upper classes cannot muster magnanimity enough to subject themselves voluntarily to this trivial tax, if it were only to avoid the disgrace of the thing: it is strange too to think, that any people should long submit to such a miserable species of oppression. Many abuses are no doubt of more importance, but this is of so open and barefaced a character! The great man walks by unquestioned, with his purse full of ducats, while the poor one, the very beggar, is forced to rummage among his rags perhaps for his last kreuzer. Blessed, therefore, be the new edifice which is to introduce a better system! Blessed be its foundation-stone, which is to be at the same time the foundation of Hungarian equality and true freedom!"

A short account of the descent of the cataracts of the Danube may not be without interest:—

"A little below Moldova, however, a very startling phenomenon makes its appearance, for to the height of twenty fathoms there arises from the very midst of the river a huge rock, with frowning chasms, jagged edges, and pointed teeth. This rock is called by the inhabitants the Babagai, or 'wicked woman.' Immediately below it is the commencement of a series of perilous whirlpools and rapids. I am unable to speak with any certainty of the height of the mountain walls at this place, but I was told by those whom I questioned, that their height could not be under 300 fathoms. Rocks and mountains then of the same height as these walls, similar in all respects, jagged and rough, and cut by deep ravines and valleys, are sown in the bed of the river itself, and tower out of the water on all sides. The highest of these is the *Tristovaczer Spitze*, below which the cataracts of the Danube begin. Scarcely had we passed this rock than we heard a dull hollow roaring in the water, and saw the dark heads of the dangerous reefs which here run right across the river. The rowers exerted all their strength and redoubled their exertions, for it is not enough that the excited waters drive on the boat till it flies before them with the rapidity of an arrow, the rowers must labour with all their might and main to increase this rapidity. If they were to proceed slowly and cautiously, by way of avoiding the rocks and reefs, they would inevitably be caught and swallowed up by one of the numerous whirlpools. The boat must cut them rapidly and decisively, like a knife, and the utmost precision, boldness, and local knowledge, are required in the steersman. As in human life, wherever whirlpools and rapids lie in our course, the timid and fearful are sure to sink, while the courageous steersman who redoubles his energy, and exerts all his experience and judgment, passes victoriously through every peril. The transition from a quietly-flowing river to a wild eddying and whirling torrent, is, of course, gradual. At first the water only runs with greater rapidity. By degrees, small vortices and then greater ones begin to appear. As we advance, the pools increase in depth and circumference, and their edges lap over more and more upon one another till the whole becomes one vast, roaring, foaming, eddying, whirling vortex. We all stood in the forepart of the boat, near where the rowers sat, many of us stretching our heads over the side to witness the wild and awe-inspiring tumult of the elements. The children alone continued to play with careless unconcern, regardless of the dangers around them. The steersman stood aft, gazing steadily upon the stream. Upon his energy and skill our safety depended. The measured, steady motion of the oars, as they cut the convex swelling bubbles in the whirlpool, formed a fine contrast to the wild, stormy confusion of the waters. I cannot say exactly how long the tumult lasted. It began three times anew, forming three separate whirlpools. The breadth of the Danube, in the narrowest part of this pass, is only a hundred fathoms. Below Pesth it is 600 fathoms broad, and below Belgrade it is a perfect sea. This vast mass of waters, enriched by innumerable tributaries, is here forced through a channel so extremely narrow, and no vent is to be obtained either by inundation, or by any other means. It is this which gives the whirlpools, and the cataracts which follow them, such tremendous force and impetus. It is wonderful to see the whole united volume of water pouring itself down one steep and narrow defile with the rapidity of lightning, and more than the noise of thunder. To estimate the exact quantity of water which is poured down the Clissura is impossible, for the depth of the river has never been ascertained with any degree of certainty; indeed, it is so very various at different parts that to find a just average is scarcely possible. At one place the boatmen said 'Here the river is forty fathoms deep;' and at another, 'Here the rocks are only two feet below the bottom of the boat.' Sometimes it happens that the boat, dancing wildly upon the waves, scrapes upon a rock, yet it is very seldom that an accident occurs. Out of 100 vessels 99 get through the pass in safety. One may afford to risk life with such odds in one's favour."

Had we space we might quote from the interesting account of the military dispositions of the frontier, and the author's opinion of their use and advantages. But we must bid farewell for the present, in the hope that we shall meet Mr. Kohl in many other fields of research and pleasant anecdote. He has recently visited England, and we may therefore expect from his graphic pen a sketch of ourselves and our country.

The Drama in the Middle Ages. By Dr. Görres.
[Second Notice.]

Before the days of Marlowe and Shakspeare, "Mysteries," with their less spiritual kindred "Moralities," had ceased to be the staple amusement of the people. The last was performed, according to Prynn, during the reign of James the First, when 'Christ's Passion' was played at Ely House, in Holborn, on Good Friday, in the presence of thousands of spectators. In Germany, however, even at the beginning of this century, they were not uncommon; but the all-annihilating wars, of which that country has been the theatre, and the secularization of the monasteries, put an end to such peaceful recreations. Ammergau is one of the very few places in Germany (we have failed to discover any other,) where the old custom is still kept up: and this brings us to the passion-play there represented. Its origin is related in the following tradition:—

In the year 1633 a virulent and contagious pestilence broke out in the neighbourhood of the Vale of Ammer. The inhabitants of Ammergau took all possible precaution to prevent its reaching to them. But an Ammergauer, who was at work at Eschenlohe, a village in the infected district, escaped the vigilance of the *cordon sanitaire*, and returned home across the mountains. Two days elapsed, and he was a corpse. The poison was disseminated, and within three weeks eighty-four persons fell victims to the disease. The villagers, in great consternation, vowed a vow to God to perform a decennial mystery, being 'The Atoning Sacrifice at Golgotha, and the History of the Passion and Death of Jesus.' Wonderful to relate, the plague immediately ceased, and not a single one of the many who lay sick of it died.

From that time this 'Passion' has been regularly performed in scrupulous observance of the vow, except some slight irregularity in the time of Napoleon's wars. Some talk there was, it is true, of following the example of other places, and terminating this antique ceremony altogether. But the celebrated Bavarian minister, Mongelas, happened to be present at a representation of it in 1815; and though not remarkable for any peculiar homage to the hierarchy, he became so interested in it, that he was instrumental to its continuance, and thus this scanty memorial of the past has been rescued from oblivion. In process of time the old piece has become interwoven with dumb shows of the types and shadows contained in the Old Testament. Alterations, too, have been made in the text, and its monkish rhymes converted into blank verse;—hence the play, as it is now acted, presents but little that is characteristic either as regards expression or idea.

The actors are from 300 to 400 in number, including persons of all callings and ages. Without exception they are natives of the village. The ass, albeit, on which Our Saviour rides, is from the adjoining hamlet of Unter-Ammergau, —*i. e.* the lower, this being the upper village of that name. Indeed, the exclusion of strangers from the *dramatis personæ* is carried to a degree almost puritanical. "A female of the village entered into a Wurtemberg monastery. On that institution being subsequently suppressed, she returned home with a pension for life. She had been so long absent that she was no longer considered one of them, and could aspire to no more elevated part in the play than that of a mute."

No less strict and scrupulous are the villagers about the morals and manners of life of the players; and if it be discovered that any one accustomed to fill a principal character has become a tippler, or of irregular habits, he is degraded into a third-rate actor. Propriety in dress and manner is the order of the day.

The alpine village of Ammergau is—we can speak from personal knowledge—a most romantic spot; the abrupt precipices around, the favourite haunts of the bounding chamois and sleepy marmot; afar off the lofty glaciers, from whose snowy sides the thousand petty rills have tumbled down to form the pellucid Ammer-stream,

which courses through the fertile meadows skirting the village; the place itself, called in the old *Ulm* chronicle, the prettiest in Germany; and, above all, the secluded quiet of the scene, unite to form a picture only to be found in the neighbourhood of the Tyrolese Alps. It is one of those spots which are very apt to escape the observation of your *grand chaussée* tourist, who travels merely because it is the mode, and that he too may gabble, as well as his neighbours,—

> About the Alps and Apennines,
> The Pyreneans and the River Po.

The theatre for the occasion was constructed of wood, outside the village. The seats had no other covering but the sky: the stage alone was protected from the weather. Everything was pristine; almost a realization of the Roman bard's description:—

> No veils were *there* o'er marble structure spread,
> No liquid odours on the audience shed;
> The nearest grove supplied its choicest green,
> And clustering branches formed the artless scene;
> Rude seats of turf in order rose around,
> Where sat the swains with oaken garlands crowned.

Before entering minutely into the construction of the stage, we will, for a moment, refer to Strutt's remarks on this part of the early English theatre. "What is now the stage, consisted of three several platforms, or tiers, one above another: on the uppermost was perched the Pater Cœlestis, surrounded by his angels; on the second holy saints and glorified men; while the lowest was occupied by those who had not yet passed from the transitory state to the regions of eternity. On one side of the lowest platform was the semblance of a dark, pitchy cavern, from whence issued fire and flames, and when necessary, the audience was treated with discordant yelling and noises; while, ever and anon, for their delight and instruction, devils ascended from beneath." Our mountain Thespians pay more regard to the nerves of the present generation. Lucifer formerly commenced the piece with a chorus of demons, but this kind of Proem is now studiously avoided, perhaps to prevent the chance of any such untoward events as marked the *début* of the Eumenides in the Æschylean Tragedy.

The construction of the stage (says our author) does not present the old subdivision into heaven and earth, but is very appropriately contrived for the representation of the piece; for as this consists of dumb show types from the Old Testament, and acted dramatic scenes from the New, the stage is also divided into two parts. In the centre of the great stage, and somewhat backwards, there is another smaller one, concealed by a drop-curtain. To the right and left, between the side-walls of the theatre and this double stage, one sees two streets of Jerusalem going back deep into the distance. The intermediate space on either side between these and the stage, is filled up by two houses, provided with balconies.

This plan is peculiarly adapted for the multitudinous processions that from time to time emerged from the background and again disappeared. Classical antiquaries may perhaps be interested to hear that the learned and well-known scholar, Professor Thiersch, of Munich, has discovered the above to be the exact model of the old Athenian stage.

The number of spectators was about six thousand. The various costumes of the Tyrolese, Bavarians, and Swabians, presented a very interesting sight. Most of the females had thrown red or white kerchiefs over their heads as a shade against the sun, which glanced down—by the bye, not the least *ardent* of the spectators. The heavens glowed mildly in all the cloudless depth of blue that belongs to the southern landscape. Upward soared the carolling lark, around looked down the bold Alpine peaks in tranquil majesty, and high aloft one might discern the cross surmounting the giddy precipice of the beetling *Münnel*. All was in a fever of expectation for the commencement of the play. At last the church clock tolled eight. The mortars gave the signal, from the right and left issued the chorus to the sound of music, and the passion-play began.

But a word on the chorus. They were twenty-two in number, eleven of either sex, and it was their duty to interpret each intermediate *tableau* to the audience, and prepare them for its connexion with the acting part that was to follow.

They first commenced with a prologue, generally explanatory of the whole piece. The curtain was then drawn up, and exit chorus; while far off in the background a triumphant procession is descried, marching along in slow solemnity. The Saviour himself riding upon an ass, and surrounded by his disciples. Some of the people then cry 'Hosanna!' and wave branches of palm, others strew their garments in the Lord's path, and mothers, in voluminous Oriental costumes, extend their infants to receive his benediction: all is happiness and rejoicing. This scene closes with the expulsion of the money-changers from the temple. After which re-enter chorus, and the choragus explain how the envy of the priests and pharisees conspired for the destruction of Jesus, and show how this had been typified by the story of Joseph and his brethren. This said, the chorus pair off to the right and left, and take up their stations at the opening of the aforementioned streets. The inner curtain is elevated, and we see the Plain of Dothan, with the well into which Joseph was cast. Two of his brothers stand (of course without movement) gazing into it. The rest are in various attitudes, meditating, apparently, on what they had done.

But it is not our purpose to follow the progress of types and anti-types, down to the ultimate catastrophe. A few further remarks will suffice. The tableau from the old testament, where Joab, under the pretext of a kiss, stabs Amasa, thus shadowing forth the "kissing traitor" Judas, is mentioned by the writer, as a very effective one. We will render literally the explanatory song of the chorus, as a specimen.

> *Chorus.* Ye rocks of Gabaon
> Why stand ye desolate?
> Enveloped thus in garb of woe,
> Ye, once the region's pride!
> Tell, we conjure *ye*, tell us what befell.
> *Echo.* Fly, wanderer, fly;
> Accursed is this bloody place;
> Here fell, by murderous hand assail'd,
> An Amasa, &c.

Another tableau, the falling of the Manna, was "wonderfully real," and farther on he says—

The beholder might have fancied that the persons represented were actually then before him. At one time the tableaux reminded me of the paintings of Leonardo da Vinci and Paul Veronese, at another of the Tyrolese painter, Martin Knoller, many of whose works are preserved in the neighbouring monastery of Ettal. The only change I should wish to see would be in the vestiture of the chorus, whose parti-coloured feathers and sandals would be more in keeping with the *Opera Fernan Cortez* than a play of the Passion.

The acting gains his special commendation. Respecting the difficult and fatiguing part of Christ, we are told, "It was not acting, but holy earnest. Propriety and dignity accompanied each movement, and under the roughest treatment, he stands before us like a king." There was much less mouthing and ranting than could have been expected among a set of illiterate mountaineers, suddenly finding themselves in so unusual a position. The chief drawback was their *patois*, which, as the place is situated nearly on the confines of Suabia, Bavaria, and Tyrol—countries none of them in high repute for 'streams of *German* pure and undefiled'—will not excite astonishment. The performance was continued till *six o'clock in the evening*, only deducting an hour for refreshment at mid-day. Many an eye was moistened with tears; and stifled sobs, as we were told by an eye-witness, testified how deeply the hearts of the simple hearers were penetrated—all quite of a piece with the fervent and religious temperament of these artless mountaineers. "This land of the mountain and the flood," may be said to be "meet nurse for a *religious* child." Heaven's warning is heard, how often! in the thunder that echoes from their cliffs. The runnel, that creeps along to-day making sweet music with the enamelled stones, is on the morrow a tearing cataract, carrying ruin and desolation to their smiling fields and humble cabins. Can we wonder that this people are sober and serious, and stricter observers of religious ordinances than their fellows of the plain? Their solemn greeting, "Gelobt sei Jesus Christus," prettily alluded to in one of Bürger's best ballads, must be familiar to many of our readers. We know not whether it has been their fate—it has been ours—to arrive at an obscure hostelrie, on a Friday evening, hungry and weary; yet no entreaty could procure animal food. "Morgen kriegen sie Fleisch, heut nit." "To-morrow you'll get meat, to-day none," was mine host's decisive answer—and soon his sonorous voice was heard in even-tide prayer. This is true of every house in the village.

One word more touching the Passion. Be it known that it will take place again in the autumn of 1850, and should any of our readers have the good fortune to be then within a day's journey, we counsel them not to miss the "Ammergau Passion-Spiel."

OUR LIBRARY TABLE.

Australia and the East, by John Hood.—An unostentatious record of the author's journeyings and wanderings in Australia, India, &c. Mr. Hood is an experienced farmer, and one whose opinion is entitled to great weight. He went from England to Sydney in an emigrant ship, and his experience therein will prove useful to those who purpose to follow his steps, and his observations on Australia will be especially valuable to all who have thoughts of settling there. Yet there is but little that is new in the work, though the simple, honest, and unaffected style in which it is written will please readers of all classes and conditions.

Hints on the Formation of Character, by a plain spoken English Woman.—The views here presented are clear and simple, and calculated to do good. The "English Woman" speaks out plainly with regard to the many corruptions of conventional society. The work is less limited in its subject than most of those devoted to the same purpose, and the writer is not confined by bigotted attachment to any particular theory.

Nature; Napoleon's Entry to Hades; and other Poems, by Benjamin Wale.—Mr. Croly, Mrs. Hemans, and Miss Mary Anne Browne, are in turns imitated by Mr. Wale, who, according to his preface, is a very young poet. On this ground, we will not take exceptions to his mocking-bird propensities; and besides, an occasional ease and sense of the picturesque are apparent, which will further justify our leniency.

An Inquiry into the Merits of the Reformed Doctrine of Imputation as contrasted with those of Catholic Imputation, by V. Livingston.—This is the work of a convert from Protestantism. Into a consideration of its merits or demerits, being purely theological, we, of course, shall not enter. The author charges the Oxford divines with inconsistency in their teaching, and devotes a considerable portion of his work to canvassing their doctrines.

Brief Thoughts on the Things of God and the Soul, by E. Dalton.—As these Thoughts are expressed in words of one syllable, and must therefore be intended for the young or ignorant, we should not have been surprised had we found them somewhat cramped in style, and not very clear in expression; but we had all the more right to expect that they would be plain and simple. This, however, is not the case, and these Brief Thoughts would have been much better had they been much more brief.

The Practical Bee Keeper, by J. Milton.—Brief instructions for the management of Bees, containing incidentally an advertisement of Mr. Milton's hives, and where they may be purchased.

The Rhine; from the French of Victor Hugo, by D. Aird.—A new version and a cheap edition, illustrated with wood-cuts.

Thoughts on Popery, by the Rev. W. Nevins, D.D.—One of the least exceptionable books that has proceeded from the Protestant Association: but it contains nothing new.

List of New Books.—Lempriere's Classical Dictionary, abridged, by E. H. Barker, a new edit. revised by J. Cauvin, post 8vo. 12*s.* bd.—The Biographical Dictionary of the Society for Diffusion of Useful Knowledge, Vol. III., Part I., 8vo. 13*s.* cl.—The History of Ancient America, anterior to Columbus, by G. Jones, 2nd edit. royal 8vo. 20*s.* cl.—Posthumous Extracts from the Veterinary Records of the late John Field, by his Brother, 8vo. 8*s.* cl.—A Tabular Display of British Architecture, by A. Barrington, with a Manual of British Architecture, 7*s.* 6*d.* in case.—A Memoir of the late Greville Ewing, by his Daughter, 8vo. 12*s.* cl.—Biographical Illustrations of Westminster Abbey, by G. L. Smyth, Esq., Part I., medium 8vo. 3*s.* 6*d.* swd.—The Ninth Annual Report of the Poor Law Commissioners, 8vo. 6*s.* cl.—The Language of Flowers, 9th edit. 18mo. 10*s.* 6*d.* silk.—Entick's Latin English Dictionary (Tyronis Thesaurus) by Carey, a new edit. square 12mo. 5*s.* 6*d.* bd.—Entick's English-Latin, square 12mo. 4*s.* 6*d.* bd.—Entick's complete Latin-English and English-Latin, square 12mo. 9*s.* bd.—Bickersteth's Divine Warning to the Church, 8th thousand, 18mo. 3*s.* cl.—Union Tune-Book, small edit. oblong, 5*s.* cl., 6*s.* hf-bd.—Juvenile Harmonist, oblong, 2*s.* 6*d.* cl., 3*s.* hf-bd.—Union Harmonist, oblong, reduced to 10*s.* 6*d.* cl.—Union Tune-Book, large edition, oblong, reduced to 10*s.* cl. and 11*s.* hf-bd.—Penrose on the Atonement, 8vo. 10*s.* 6*d.* cl.—Guy's Principles of Forensic Medicine, Part I., 12mo. 4*s.* swd.—Mesmerism, its History, Phenomena, and Practice, by W. Lang, 13mo. 4*s.* 6*d.* cl.—Popular Cyclopædia of Natural Science, 'Animal Physiology,' by W. B. Carpenter, Esq., M.D., 12mo. 10*s.* 6*d.* cl.—Tour in France, Italy, and Switzerland, by A. Clarke, Esq., of Comries, post 8vo. 10*s.* 6*d.* cl.—Abyssinia, Journals of the Rev. Messrs. Isenberg and Krapf, Missionaries of the Church Missionary Society, post 8vo. 12*s.* cl.—Tidd Pratt's 'Poor Law Statutes,' to 1842, 8vo. 15*s.* bds.—La Babillard, an amusing introduction to the French Language, 3rd edit. with 16 engravings, 16mo. 2*s.* cl.—Paul Preston's Voyages, Travels, and remarkable Adventures, 2nd edit. with numerous engravings, 16mo. 3*s.* 6*d.* cl.—Truelove's Short Tales, new edit. 16mo. 3*s.* 6*d.* cl.—Hannah More's Spirit of Prayer, new edit. fc. 6*s.* bd.—A Complete View of Puseyism, by R. Weaver, Author of the 'Reconciler,' &c., royal 12mo. 5*s.* cl.—Borrow's Gypsies of Spain, 3rd edit. 2 vols. post 8vo. 18*s.* cl.

THE POET'S PATH.

THE poet's path of old, it passed
By Grecian grove and hill;
And through the wrecks of war and time
We trace its splendour still;
For there the ancient temples rose,
As at the thrilling call
Of that Egyptian wanderer's lyre
Arose the Theban wall.

And since o'er many a distant shore
That starry path hath shone,
For gleaming through the Polar night,
It cheered the frozen zone;
The old Crusaders saw it shine
Through realms of Eastern bloom,
And the wanderers of the Western woods
Amid their leafy gloom.

But, like the ocean-doomed, who sought
The happy isles of yore,
The feet that seek that pleasant path
May turn aside no more;
For tuneful lips that once have quaffed
The bright Castalian rill,
Though never more they taste the wave,
Will wander by it still.

As he who traversed lands of old*—
The glorious and unknown—
Returned at last in age to be
A stranger in his own;
So hearts that early leave the dust,
That upward path to share,
Forgotten lose their hold of earth,
And seem but strangers there.

But oh! what glorious visions shine,
What lovely scenes arise,
Around that mystic path, to win
From earth the pilgrim's eyes!
Though ever seen through thorny brakes,
Or wastes of trackless sand,
As Israel from the wilderness
Beheld his promised land.

Long, long, the early Muse hath left
Her own, her Grecian isles;
And long the Runic harp is hushed
Among the Northern wilds;
And o'er the poet's path a flood
Of time and tears hath swept;
But still 'tis all of Eden which
Our fallen world hath kept.

Sept. 3. FRANCES BROWN.

* Marco Paolo.

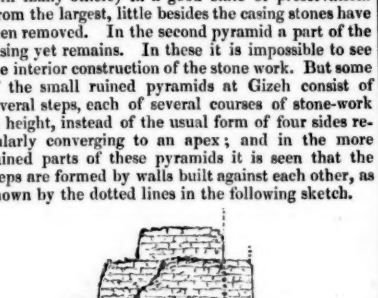
FOREIGN CORRESPONDENCE.

Cairo, August 17.

THE last monthly meeting of the Egyptian Society was very fully attended, as it was announced that Dr. Lepsius would give some description of the researches made by the Prussian Expedition.

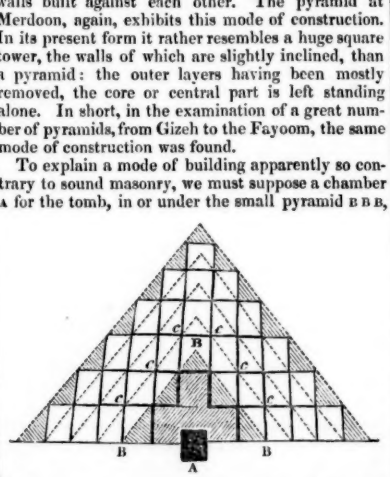
Mr. E. W. Lane being unanimously called to the chair, Dr. Lepsius commenced by stating that he felt it to be his duty, whenever he had the opportunity of visiting Cairo, to communicate any information that he might consider interesting to so useful and liberal a Society. He felt assured, from the great progress already made in the few years since its establishment, that it was destined to fill an important place in the history of scientific research in this country. The Doctor then alluded, in proof, to the valuable memoir lately published by the Society, contributed by M. Linant 'Sur le Lac Mœris.' He offered some observations on the mode of constructing the pyramids, and enumerated the many theories that had been advanced concerning the objects and the construction of these vast monuments. He, however, considered the fact established, that their object was simply to mark the places of tombs, and he then proceeded to explain to the meeting the manner in which they were constructed.

The great pyramids of Gizeh are (in comparison with many others) in a good state of preservation. From the largest, little besides the casing stones have been removed. In the second pyramid a part of the casing yet remains. In these it is impossible to see the interior construction of the stone work. But some of the small ruined pyramids at Gizeh consist of several steps, each of several courses of stone-work in height, instead of the usual form of four sides regularly converging to an apex; and in the more ruined parts of these pyramids it is seen that the steps are formed by walls built against each other, as shown by the dotted lines in the following sketch.



The masonry of the pyramids of Abousir and Saccara is very inferior to that of the pyramids of Gizeh—in all of these the step construction is clearly seen, and also that the steps are separate walls built against each other. The pyramid at Merdoon, again, exhibits this mode of construction. In its present form it rather resembles a huge square tower, the walls of which are slightly inclined, than a pyramid: the outer layers having been mostly removed, the core or central part is left standing alone. In short, in the examination of a great number of pyramids, from Gizeh to the Fayoom, the same mode of construction was found.

To explain a mode of building apparently so contrary to sound masonry, we must suppose a chamber A for the tomb, in or under the small pyramid B B B,



built over it: by filling up the angles of the steps, and adding the fine smooth casing stone, this small pyramid would be completed; but if it were desired to enlarge the work, instead of filling up the angles to prepare for the casing, another step, of the same height and depth as the first, being added to each step of the first mentioned pyramid, the outline touching the exterior angles of these steps, c c c, &c. would be parallel to the outline of the first pyramid; and so on, by continually adding steps of the same section, the pyramid would be increased to any size. The foregoing sketch thus shows five pyramids, one within the other. Dr. Lepsius stated that he was indebted to Mr. J. Wild, architect, for this suggestion, and it agrees with and explains the account given by Herodotus, who states that machines were placed upon the steps, and the stones raised from one step to another. The Doctor then explained, in confirmation of his views, the remarkable pyramid of Dashour; he considered the obtuse angle of the upper part, as the original angle intended. Moreover, Dr. Lepsius observed that this mode of proceeding is in harmony with that adopted by the Egyptians in their tombs excavated in the rock. It is found at Thebes that the first care of the reigning king was to excavate in the rock, and complete and decorate, a chamber for his tomb. If his life continued after the end of this labour, another chamber was added, and then another, and so on; and it is found that the largest tombs are those built by the kings who have reigned the longest. In the same manner, the pyramids may have been continually enlarged during the lifetime of the kings for whom they were intended. All the evidence that remains shows that the largest pyramids were of kings who reigned a long time. It must be remembered, that among the Egyptians it was the duty of the individual to provide a tomb for himself; his successor was immediately occupied upon his own, and thus we find many tombs either hastily or imperfectly finished, and chambers left in all states of progress. Could a monument of such stupendous size as the great pyramid of Gizeh, have been contemplated as an original plan, to have been finished, or nearly so, in the lifetime of one man? but it is easy to conceive that by perpetual additions during a long reign, such a building may have been completed.

Dr. Lepsius then exhibited a selection of beautifully finished drawings, of the subjects and inscriptions decorating the tombs round the pyramids of Gizeh and Saccara, architectural plans, sections, &c. The time allowed was too short for more than a slight examination of them. The explanations given of some of the subjects was very interesting.

The Doctor did not refer to his researches in the Fayoom. I am, however, enabled to inform you, that he has fixed satisfactorily the place of the labyrinth near the pyramid of Howarra, and has traced from what remains, a general plan of it. Its complete ruin is owing to the walls having been built with rude brick, and merely faced with stone; from the same cause, the tombs at Saccara are nearly all destroyed, while those at Gizeh, which are entirely built of stone, are in good preservation.

By the liberal regulations of the Society at whose rooms this lecture was delivered, strangers are permitted to use the library and attend the lectures, if introduced by a member. I had thus the opportunity of hearing the paper I have endeavoured to report to you. The library, although not very large, contains nearly all the valuable works on the antiquities of Egypt and the surrounding countries, the works of the best travellers and historians, some upon Arabic literature, &c.

Dr. Lepsius left Cairo to-day for Upper Egypt.

OUR WEEKLY GOSSIP.

WE this day close our report of the proceedings, as far as the sectional business is concerned, at the thirteenth meeting of the Association. If success is to be calculated by the number of members attending, it has been a failure, not more, we believe, than 400 having been present; but so many and such obvious circumstances—distance, the political state of the country, &c.—offer themselves in explanation, that the fact cannot excite surprise. It must, however, be regretted, because the resources available for scientific purposes are proportionally reduced; and when the Committee of Recommendations voted no less than 1,877*l.* in aid of further inquiries, it is obvious that the greater part of the money must be taken from the reserved fund, accumulated in past years. It is, however, consolatory to know—and this is admitted on all hands—that so far as science is concerned, the meeting has produced its full proportion of valuable communications; but on this point our

readers are able to judge for themselves. To a report of the scientific proceedings we have confined ourselves even more strictly than usual. The hospitable and pleasurable accompaniments of the meeting are matters of moment at the time and to the members, but in no way interest the public, although the speeches of Lord Rosse at the dinner, and of Dr. Robinson at the close of the meeting, were both admirable in their way.

We have so often alluded to the mystery hanging over the fate of Colonel Stoddart and Captain Conolly, that we are sure our readers will learn with pleasure, that a public meeting was held on the 7th, to take into consideration the proposal made by the Rev. J. Wolff of proceeding to Bokhara, to ascertain if the reports of their being still alive are true. At the meeting it was decided that the attempt should be made, and we cannot doubt that sufficient money will be raised at once to pay Mr. Wolff's expenses.

Now that the public have had an opportunity of comparing the cartoons one with another, and pronouncing their opinions on the decision of the judges, the collection has been dispersed, and those who wish to study the successful drawings to greater advantage than they could in the distraction caused by the number of specimens in Westminster Hall, may do so by visiting the Suffolk-street Gallery, where they will be exhibited for the next two or three months on payment of a shilling. The unsuccessful cartoons will, we believe, be exhibited at the Pantheon and the Pantechnicon.

A new machine, called the hydro-electric, invented by Mr. Armstrong, and which is said to be of greater power than any electrical machine before constructed, was exhibited on Thursday evening at the Polytechnic Institution. The experiments performed were very brilliant, and went far to prove the assertion made respecting it. A shaving of wood was ignited by the electric spark, and an immense battery was charged by it in the short space of eleven seconds. The principle on which this machine is constructed is simple. It consists of a common tubular boiler, isolated by means of glass supporters, and a telescope chimney, capable of being lifted off. The steam is let off by means of curved tubes, opening upon a box filled with a row of iron spikes, on which the steam is condensed. The steam, on being let loose, carries away the positive electricity from the boiler, leaving it in a negative state. The equilibrium is then restored to the boiler by means of a conductor brought near to it, and the electric spark is elicited. A novel kind of microscope, invented by Mr. Longbottom, was also exhibited. It reflected the objects upon a white ground, bringing out all the colours most perfectly. Several medallions were exhibited by it, and the effect was tolerably good; but the arrangements, as we understood, were in an imperfect state.

In lack of all other musical novelties, we were led, a day or two since, to examine into the pretensions of a singing mouse, now exhibiting at the Cosmorama Rooms in Regent-street, which we visited, we must confess, rather sceptically inclined. The little vocalist is confined in a common cage such as is used by the Italian boys for their exhibition of white mice. The animal sang incessantly during the whole time we were present—a quarter of an hour: its notes are low but clear, and not unlike those of the nightingale. Every facility is afforded, by the exhibitor, for examining into the genuineness of this musical phenomenon, and with all our care we could detect no appearance of fraud. The fact, if it be one, is especially curious in a zoological point of view, as it is said that the larynx of the mouse is not fitted for the production of musical sounds, and that the present specimen consequently must be somewhat of a *lusus Naturæ*.

The following few words respecting the doings at Cologne are from a correspondent: "Who could pass Cologne, and not look at its cathedral, though for the thousandth time? Now, one looks hopefully: for the choir is rapidly approaching completion:—the frescos and the gilding being three parts finished, and all the splendid windows cleaned: and the nave, and one of the transepts that are to be, show emphatic signs of growth. Whatever the result may be, the church is now a hive of workmen. The Freemasons are said to have bound themselves to lay a yearly offering on the shrine of the Three Kings—a journal is published exclusively devoted to the proceedings of the committee; and those who mark from year to year the awakening in action of this noble and earnest people, as testified in their public works, may be excused for dreaming of a day, when the Gothic Cathedral of the world will stand forth in the fulness of all its glory. Every one is grieving, as well they may, over the destruction of the beautiful Berlin Opera House. Here concerts are flying about as fast as steam can take the artists, Liszt and Haumann, from one town or *Brunnen* to another. It is a relief for a moment, for the Londoner, to be out of the reach of all these temptations—for which reason, I will apply Miss Hardcastle's remark concerning women and music, to these few hasty lines, and they 'shall not be dated.'"

A new work on Goethe has appeared at Dresden, by Dr. Carus, a court physician of that place, entitled 'Contributions to a better Understanding of Goethe.' It has created a stir among the many admirers of the great poet, as containing several unpublished letters, and conversations held by him with the author.—The once-popular German novelist and dramatist, J. Friedrich Kind, died at Dresden, in July, in his 76th year, having been born at Leipzig, March 4, 1768. His productions are so exceedingly numerous, amounting altogether to some fourscore volumes, that nothing but a first-rate reputation could keep the mass of them from sinking into oblivion, especially as they are of a class whose readers require the stimulus of novelty. He was most of all successful in his tales and shorter narratives, which have the recommendation of being of unobjectionable moral tendency. Among his dramatic pieces, his 'Van Dyk's Landleben' is the most esteemed, but 'Der Freischütz' the only one which produced a sensation in the theatrical world, by being "married" to the music of Weber.

The Berlin monument, to commemorate the duration of peace for a quarter of a century in Prussia, of which the first stone was laid three years ago, was uncovered on the 3rd of August last. The shaft is a monolith of granite, twenty-two feet high, standing on a pedestal, with a colossal bronze statue of Victory, by Rauch, on its summit. The capital is Corinthian, with eagles on the side, and the whole monument is fifty-eight feet high.—The new Museum, in the same city, is rapidly advancing towards completion. One large room will be especially devoted to Etrurian art, of which Mr. Waagen has formed a large collection.—An art-romance, called 'Semida, the Original Thinker,' recently published in Berlin, is spoken of very highly, and appears to be exciting much attention.

Alexis Olenin, President of the Academy of Fine Arts at St. Petersburg, died at the end of April, aged upwards of 70.

PRIZE CARTOONS.—Notice is hereby given, that the Prize Cartoons are now removed to the SUFFOLK-STREET GALLERY, Pall Mall East. The Exhibition commenced yesterday, (Friday the 13th). Open daily, from Nine o'clock, A.M., till Six o'clock. Admission, One Shilling.

DIORAMA, REGENT'S PARK.

NOW OPEN, with a NEW EXHIBITION, representing the CATHEDRAL of NOTRE DAME at Paris, with effects of Sunset and Moonlight, painted by M. REMOUX, and the BASILICA of ST. PAUL, near Rome, before and after its destruction by Fire, painted by M. BOUTON. Open from Ten till Six.—N.B. A GRAND MACHINE ORGAN has been constructed expressly for this Exhibition, by Messrs. Gray and Davison, of the New-road, and will perform the Gloria, from Haydn's Service, No. 1, during the midnight effect of the Cathedral of Notre Dame.

RE-OPEN TO THE PUBLIC.

ROYAL POLYTECHNIC INSTITUTION.—FIRST PUBLIC EXHIBITION of Two important Discoveries in Science, viz.—ARMSTRONG'S HYDRO-ELECTRIC MACHINE, which will be exhibited Daily at Three o'Clock, and at Eight in the Evenings; and LONGBOTTOM'S OPAQUE MICROSCOPE, showing Objects in NATURAL HISTORY in all their varied Colours. LECTURES Daily on CHEMISTRY and NATURAL PHILOSOPHY by Dr. Ryan and Prof. Bachoffner. The arrangement of the OPTICAL DEPARTMENT is under the management of Mr. Goddard. DISSOLVING VIEWS and COSMORAMIC PICTURES, MODELS, of all kinds of MACHINERY in MOTION, DIVER and DIVING BELL, &c. Leader of the Band, T. Wallis, Mus. Doc. Open Mornings and Evenings, except Saturday Evenings. Admission 1s.—Schools Half-price.

MISCELLANEA

Paris Academy of Sciences.—Sept. 4.—A communication was received from M. Breguet, announcing that he had completed an apparatus, composed of three mirrors, which cause three successive reflections of the solar light, and are set in motion by a mechanism, which imparts to them the enormous speed of 2,000 revolutions per second. The principal object of this instrument is to verify the hypotheses which have been advanced as to the nature of light, and more particularly the theory of Newton upon its emission, and that of Huygens, Young, and De Fresnel on its undulations.—A work, on the nervous system of men and animals, was received from M. Longet. The author confirms by a variety of experiments the correctness of the opinions of Bell on this interesting, but still imperfectly understood, subject, and throws out many ideas, which may lead to other researches, and to results of more practical utility than any that have yet been obtained as to the precise influence of the nerves on the human body, whether in its normal state or otherwise. One of the facts mentioned by M. Longet is, that the motive force of the nervous system, brought into action by galvanism, is always centrifugal, while the passive or sensitive condition of the nerves takes an opposite direction.—A paper on a remarkable phenomenon of the tides at the Sandwich Islands, on the 7th November, 1837, as recorded by M. T. C. Byde Rooke, was read. On the evening and night of the day above named a commotion of the sea was witnessed at Honolulu, in many respects similar to that experienced at these islands in May, 1819. One inch and a half of rain had fallen during the previous 24 hours; the wind was fresh from the N.E., squally at intervals; the atmosphere was clear and cool, the thermometer 74.5; the barometer had gradually fallen during the four previous days, but this evening had again risen to 30.06. At six o'clock the alarm was given that the sea was retiring; the recession was somewhat more than eight feet; the reefs surrounding the harbour were left dry, and the fish aground were mostly dead; the sea quickly returned, and in twenty-eight minutes reached the height of an ordinary high tide; it then receded, and fell six feet. On the third rising it attained the height of four inches above the high water mark, and fell again 6 feet 4 inches. The rapidity with which the water fell varied in different parts of the harbour; on the east side, the greatest rapidity noticed was six inches in a minute, but on the north, at one time during the third recession, it fell 12 inches in 30 seconds. At no time did the water rise higher than a common spring tide, but the fall was about 6 feet below low water mark. The same occurrence is said to have taken place in 1819, when the tide rose and fell 13 times in the space of a few hours, but on neither occasion was there any perceptible motion or trembling of the earth, or unusual appearance of the atmosphere. The same phenomena were observed at Mani and Hawaii. On the leeward side of Mani, the same rise and fall took place as at Honolulu, but on the windward part of the island the sea retired about 20 fathoms, and quickly returned in one gigantic wave sweeping every thing before it. At a village called Kahulin, district of Wailuku, on the sea retiring the inhabitants followed it, catching the fish, when all at once the sea returned, overwhelming the multitude, but fortunately their amphibious habits diminished the danger, and only two lives were lost; the canoes were, however, all destroyed. At Byron's Bay, Hawaii, the sea at half-past six retired at the rate of 4 or 5 knots an hour, reducing the soundings from 4 to 3½ fathoms at the anchorage, and leaving a great extent of the harbour dry. The inhabitants ran down to the beach, when the same scene took place as at Mani, and had it not been for the assistance afforded by the British whale ship, *Admiral Cockburn*, many lives would have been lost, for the canoes were all destroyed. In Kanokapa and Kaahelu alone 66 houses were destroyed, and 11 persons lost their lives; at Kauwali Swoman no shock of earthquake was felt; but the volcanoes of Kilawa were much disturbed the previous evening; yet nothing unusual was observed at sea at the same distance. That this apparent sub-marine volcanic action took place at some distance from the islands was proved by the waves striking the different islands simultaneously, but in what direction there are no means at present of determining. Perhaps the internal fires had found a new vent, which may lay the foundation of a new group of islands, as happened 19½ years ago.

Uniform Rate of Postage.—We learn from St. Petersburg, Aug. 31, that, on the proposition of the Senate, the Emperor has issued a ukase establishing a uniform postage throughout Russia and the Grand Duchy of Finland, no matter what the distance may be; so that henceforward the tax on letters will vary in charge only according to their weight.—*Galignani.*

THIRTEENTH MEETING OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

[*From our own Correspondents.*]

TUESDAY, AUGUST 22.

SECTION A.—MATHEMATICAL AND PHYSICAL SCIENCE.

Prof. WHEATSTONE'S Report on the Electro-Magnetic Meteorological Register.—The electro-magnetic meteorological register, constructed for the Observatory of the British Association, is nearly complete. It records the indications of the barometer, the thermometer, and the psychrometer every half hour during day and night, and prints the results, in duplicate, on a sheet of paper in figures. It requires no attention for a week, during which time it registers 1,008 observations. Five minutes are sufficient to prepare the machine for another week's work,—that is, to wind up the clock, to furnish the cylinders with fresh sheets of paper, and to recharge the small voltaic element. The range of each instrument is divided into 150 parts; that of the barometer comprises three inches, that of the thermometer includes all degrees of temperature between $-5°$ and $+95°$, and the psychrometer has an equal range. The machine consists essentially of two distinct parts: the first is a regulator clock, to which is attached all the requisite recurring movements; the second is a train, having an independent maintaining power, which is brought into action at irregular periods of time by the contact of the plunging wires with the mercury of the instruments, as will be hereafter explained. The principal regularly recurring actions connected with the clock train are two:—1st. The plungers are gradually and regularly raised in the tubes of the instruments during five minutes, and are allowed to descend during one minute; 2nd. A type wheel, having at its circumference 15 figures, is caused to advance a step every two seconds, while another type wheel, having 12 spokes but only 10 figures, is caused to advance one step when the former completes a revolution. The complete revolution of the second type wheel is effected in six minutes,—that is, in the same time occupied by the ascent and descent of the plungers. Thus every successive division of the range of an instrument corresponds with a different number presented by the two type wheels, the same division always corresponding with the same number. The two blanks of the second type wheel are presented during the return of the plungers, which occupies a minute, and during which time no observation is recorded. The breaking of the contact between the plunger and the mercury in an instrument, obviously takes place at a different position of the type wheels, according as the mercury is at a different elevation; if, therefore, the types be caused to make an impression at this moment, the degree of elevation of the mercury will be recorded. This end is thus effected. One end of a conducting wire is connected with the mercury in the tube of the instrument, and the other end with the brass frame of the clock, which is in metallic communication with the plunger. In the course of this circuit an electro-magnet and a single very small voltaic element are interposed. The electro-magnet is so placed as to act upon a small armature of soft iron connected with the detent of the second movement. So long as the plunger is in the mercury the armature remains attracted, but at the moment the plunger leaves the mercury the attraction ceases, and the release of the detent causes a hammer to strike the types, and impress them by means of black copying paper on the cylinder. The armature subsequently remains unattracted until the plunger descends. Immediately before it reascends, a piece of mechanism, connected with the clock movement, brings the armature into contact with the magnet, which remains there, in consequence of the recompletion of the circuit, until the contact is again broken.

'Report of the Committee, appointed by the Council, to superintend the establishment of Meteorological Observations at the Kew Observatory.'—The limited funds at the disposal of the Committee have not allowed them to carry many of the contemplated objects into effect. The preliminary arrangements have, however, been completed, and a very perfect and efficient apparatus for making observations on the electricity of the atmosphere has been established. The Committee has paid more immediate attention to this subject, on account of its importance in connexion with the system of simultaneous magnetic and meteorological observations now making on various points of the earth's surface, in the recommendation of which the Association has taken so prominent a part. The following is a brief notice of the present arrangements:—The dome in which the equatorial was formerly placed has been converted into the electrical observatory. A circular pedestal, about eight feet in height, is firmly fixed in the middle of the room, and a platform, which is ascended by a few steps, surrounds the pedestal, so that the operator, standing upon it, shall be at a convenient height to adjust and observe the various instruments. At the centre of the pedestal is fixed a strong glass pillar, supporting a vertical copper tube tapering upwards; the length of this conductor is twenty feet, sixteen feet being elevated above the dome in the open air. The lower part of the conductor, within the dome, carries four horizontal branches, placed at right angles to each other; these are for the purpose of bringing into connexion with the conductor the various electro-metrical instruments employed. The electricity of the atmosphere is collected by means of the flame of a lamp, kept constantly alight during night and day, and placed at the upper extremity of the conductor; by this plan, which Volta recommended, much more electricity is collected than by means of a metallic point: the lamp is lowered and elevated when required by means of a cord and pulley contained within the tube. The insulating glass support of the conductor has in its interior a hollow conical space, the base of which opens into the pedestal; beneath this opening is placed a small night lamp, which heats the air within the cone and raises the temperature of the glass pillar. The upper part of the external surface of this pillar is not sufficiently heated to prevent the deposition of moisture, and is therefore, to a certain degree, a conductor; the lower part also conducts slightly, on account of its elevated temperature; but there is a zone between these two parts which insulates perfectly, on account of the temperature of that part of the surface being sufficient to expel all moisture, and yet not sufficient to enable it to conduct. A conductor thus insulated will retain its charge for hours together without sensible diminution. Another peculiarity and advantage of this method of insulation is, that the active parts of all the electrometers are suspended from the conductor, and are, therefore, uniformly charged, depending for their insulation on the warmed glass pillar only, and not, as usual, upon separate insulators, which dissipate the electricity unequally. Since the apparatus has been completed the conductor has remained constantly charged, unless purposely discharged, or during the momentary transition from one electrical state to the other. The electric tensions vary in serene weather between $+3°$ and $+90°$, and the diurnal changes are indicated with great precision. This Report is accompanied by a sectional drawing of the Electrical Observatory, and by a register of observations commenced on July 1, and continued regularly for six weeks. Observations made during the same time with the barometer, pluviometer, thermometer, psychrometer, Daniell's and Saussure's hygrometers, &c. were annexed to the Report.

Prof. LLOYD inquired how the electrometer was deprived of moisture preparatory to observations.—Col. SABINE replied, by heating in the usual manner.—Prof. Lloyd said, that his reason for asking was, that he found heating the electrometer set free a portion of the electricity of the glass, and that hence if precaution were not used a cause deranging the experiments would arise.—Col. Sabine said, that the minute attention paid by Prof. Wheatstone to these matters made him sure that this and every other matter which required attention to insure accuracy, would receive it from him. However, he would apprise him of the fact stated by Prof. Lloyd.

Sir J. W. F. HERSCHEL'S Report of the Committee appointed to conduct the co-operation of the British Association in the system of simultaneous Magnetical and Meteorological Observations.—The Report commenced with referring to the proceedings of the Antarctic Expedition. Three seasons, in which the ships have forced their way at different points far within the higher latitudes of the southern hemisphere, have furnished a magnetic survey of these regions equalling, or rather surpassing, both in completeness and accuracy, all those sanguine expectations which led the Association to urge on the Government the prosecution of this great enterprise. The magnetic observations of the Expedition which had been sent home, were in course of publication by the Royal Society. In the last of these contributions to terrestrial magnetism, the important subject of the corrections due to the iron of the ships is fully considered, and by the aid of formulæ, furnished by Mr. Archibald Smith, of Trinity College, Cambridge, and founded on the theory of M. Poisson, delivered in his Memoir of 1838, 'Sur les déviations de la Bousole produites par le fer des Vaisseaux,' the constant co-efficients of their corrections for each ship are investigated. The corrections deduced from these elements are found to agree admirably with the results of experiment, thus affording ground for the fullest confidence in the corrections depending on them, as well as in the theory from which they are derived, and in the general approximation to truth of the hypotheses necessarily made as to the distribution of the iron in the vessels. All the results being tabulated and projected in charts, the inspection of these gives room for the following interesting remarks:—1st. As great discordances are to be looked for, and must frequently be experienced in magnetic surveys conducted on land, as in those at sea, and even greater. In effect, the chief and worst cases of discordance occur in observations made on islands. 2nd. The general form of the curves of higher inclination in the southern hemisphere is much more analogous to that in the northern, than appears in M. Gauss's maps. 3rd. Capt. Ross's observations of intensity lead also to the conclusion of a much closer analogy between the two hemispheres than M. Gauss's maps would appear to indicate. No higher intensity than 2.1 has been anywhere observed. 4th. In examining the observations of declination, particularly those which point out the course of the lines of 0° and 10° east, a more westerly position is indicated than that assigned by M. Gauss for the spot in which all the lines of declination unite. The Report then mentioned that the Government of the United States has assigned funds for a magnetic observatory at Washington, as well as for a further three years' continuance of that already established at Philadelphia. The Bavarian Government also has consented, on the application of the Royal Society, to maintain for an additional three years the observatory at Munich. The first part of the volume of Disturbance Observations has been completed, comprising those made in 1840–41. Col. Sabine has prefaced this volume with a synoptic statement of the general conclusions, which it has been found practicable to deduce from the observations in their actual uncorrected state, of which conclusions the following is a brief outline:—At Toronto the march of the regular diurnal movements in declination does not consist in a simple uninterrupted progress and regress of the needle. Commencing from 2 P.M., its movement is continuous to the eastward till 10 P.M.; it then returns westward (through a comparatively small angle) until 2 A.M., when its eastward movement is resumed and continued till 8 A.M., after which its return is continuous to the west until 2 P.M. This second eastward progression is more decided in summer than in winter, and the total range of diurnal fluctuations is also more considerable. At Van Diemen's Land (a station, it is to be borne in mind, almost antipodal to Toronto,) the course of diurnal oscillation agrees with that above stated in all but one feature—viz. that the hours (in mean time at the station) of easterly movement of the north end of the bar at the one station are those of its westerly movements at the other; that the diurnal range is nearly the same in both, with a similar inequality in its summer and winter amount; a similar alternate progression and recess also prevails, and at the same hours. These are certainly very remarkable features, showing a regular connexion between two stations so remote, carried out into what may be regarded as minute particulars. Falling in, however, with the generally received impression of the universality of the causes (whatever they may be) which produce the periodical fluctuations of the magnetic elements, they can only be regarded as contributions to our knowledge of details. It is otherwise with the results deduced, by a comparison of the observations recorded

in this volume, not only at these two stations, but also at St. Helena, with each other, and with those made by M. Kreil at Prague, as respects cases of unusual magnetic disturbance which occur (so far as we can yet perceive) casually, or at least not periodically. Such comparison has enabled us, at length, unequivocally to state it as a general proposition, that the whole magnetic system of our globe is affected, in the majority of cases of great disturbance; for it is found that if a list of days of great disturbance, independently noticed as such, and marked by extra observations on each station, be made out, these lists will be found to coincide in at least a majority of days, and more especially in those days when the recorded disturbance has been greatest. Of twenty-nine principal disturbances recorded in Col. Sabine's synoptic table, some confined to a single day, others running through two or three successive days, and comprehending altogether forty-nine days, by far the greater part are shown to have manifested themselves at Toronto, Van Diemen's Land, and Prague, and fifteen are marked by extra observations at St. Helena. But though it is thus rendered certain that the whole globe is affected in many and great magnetic storms, it is equally shown that the minute identity of particular shocks, which seemed to result from the earlier observations of this nature in Europe, is not in general traceable on anything like so extensive a scale. Not the least interesting part of this volume consists in the notices at Toronto of auroral phenomena accompanying the extraordinary magnetic disturbance; they are many and remarkable, and can hardly fail to throw great light on this branch of the present subject. The difficult subject of the determination of the earth's magnetic force in absolute measure has been subjected to a further investigation by Dr. Lloyd. The difficulty which it presents is of a practical rather than a theoretical nature, and arises from this, that the expression for the tangent of the angle of deflection of one magnet by another involves coefficients, which have to be determined in Gauss's method by observations of deflection at two different distances and by elimination, in which process serious errors are introduced in the result by small errors in the observations. The object of Dr. Lloyd has been to point out a method by which the quantity sought may be obtained without elimination by observations at one distance only, thus both diminishing the trouble of the observation, and increasing the accuracy of the result. This method depends on the assumption of an empirical law in the distribution of free magnetism in a magnetical bar, inferred by Biot from Coulomb's researches. Dr. Lloyd adduces several experiments confirmatory of these results. The Report next mentioned Lieut. Lefroy's intended course of magnetic survey in North America as far north as the Great Slave Lake. He crossed the line of no variation between La Cloche and Sault St. Marie, up to which point little change of dip had been experienced, his course leading nearly along the isoclinal line of 77°. The second series of Sir E. Belcher's observations, determining the magnetic elements of 32 stations (the two series embrace 61 stations) in the Pacific Ocean, the Indian and Chinese Seas, are now printed in the Philosophical Transactions.

Sir J. W. F. Herschel 'On a remarkable Photographic Process, by which dormant pictures are produced, capable of developement by the breath or by keeping in a moist atmosphere.'—If nitrate of silver, specific gravity 1.200, be added to ferro-tartaric acid, specific gravity 1.023, a precipitate falls, which is in great measure redissolved by a gentle heat, leaving a black sediment, which being cleared by subsidence, a liquid of a pale yellow colour is obtained, in which a further addition of the nitrate causes no turbidness. When the total quantity of the nitrated solution added amounts to about half the bulk of the ferro-tartaric acid, it is enough. The liquid so prepared does not alter by keeping in the dark. Spread on paper and exposed *wet* to the sunshine (partly shaded) for a few seconds, no impression seems to have been made, but by degrees, although withdrawn from the action of the light, it developes itself spontaneously, and at length becomes very intense. But if the paper be thoroughly dried in the dark, (in which state it is of a very pale greenish yellow colour), it possesses the singular property of receiving a dormant, or invisible picture; to produce which (if it be, for instance, an engraving that is to be copied,) from thirty seconds to a minute's exposure in the sunshine is requisite. It should not be continued too long, as not only is the ultimate effect less striking, but a picture begins to be *visibly* produced, which darkens spontaneously after it is withdrawn. But if the exposure be discontinued before this effect comes on, an invisible impression is the result, to develope which all that is necessary is to breathe upon it, when it immediately appears, and very speedily acquires an extraordinary intensity and sharpness as if by magic. Instead of the breath, it may be subject to the regulated action of aqueous vapour, by laying it in a blotting-paper book, of which some of the outer leaves on both sides have been damped, or by holding it over warm water. Many preparations, both of silver and gold, possess a similar property in an inferior degree, but none that I have yet met with to anything like the extent of that above described.

'On the Action of two Blue Oils upon Light,' by Sir D. Brewster.—Having lately received, through the kindness of Dr. Gilbert, two remarkable oils of a deep blue colour,—namely, the oil from the *Matricaria chamomilla*, and that from the *Achillea millefolia*, I was desirous of ascertaining the nature of their action upon the solar spectrum. Without entering into details respecting the general action of these oils upon the different coloured portions of the spectrum, I shall confine myself to a slight notice of their specific action, in which they differ from all the various bodies which I have yet examined. Between the two lines A and B of Fraunhofer's Map of the Spectrum there are two groups of lines shown in that map. The *two* oils absorb the light in these portions more powerfully than the portions adjacent to them. No other fluid or solid body on which I have hitherto made experiments acts in a similar manner; but what is very remarkable, the earth's atmosphere exercises a similar action, when the sun's light passes through its greatest thickness at sunrise or sunset.

'Notice of an Experiment on the Ordinary Refraction of Iceland Spar,' by Sir D. Brewster.—Prof. M'Cullagh, of Trinity College, Dublin, in following out a hypothesis respecting light, has been led to a law of double refraction more general than that of Fresnel. One of the results of this law, though not a necessary consequence of Prof. M'Cullagh's theoretical views, was, that in all crystals with one axis of double refraction the ordinary ray was refracted according to a law different from that of Snellius. Instead of the two refractions being regulated by the sphere and spheroid of Huygens, they would be regulated by two ellipsoids touching each other at the extremities of a common diameter coinciding with the axis of the crystal—one ellipsoid differing slightly from a sphere, and the other slightly from a spheroid. Prof. M'Cullagh requested me to ascertain whether or not the *ordinary refraction of Iceland spar* varied at different inclinations to the axis, in the hope of finding such a difference as his theoretical views indicated. In place of doing this, by measuring the ordinary index with two separate prisms, I adopted the plan of cutting two prisms out of the same piece of Iceland spar—one having the refracted ray coincident with, and the other perpendicular to, the axis. These prisms were fastened by cement to a plate of glass, and their second surfaces ground and polished in that state, so that their refracting angles were necessarily equal. When this was done, I refracted the *yellow* homogeneous ray D of Fraunhofer, produced by a candle with a salted wick, and, looking through the refracting edges of both prisms with the same eye at the narrow aperture, I observed the most perfect coincidence between the two refracted images of the sharp line D. This placed it beyond a doubt that the ordinary ray had the same index of refraction in both prisms within the limits of the errors of observation. Prof. M'Cullagh's law, however, may still be true.

Prof. M'Cullagh remarked, that the law referred to by Sir D. Brewster was merely conjectural, and was not a necessary consequence of the principles which he (Mr. M'Cullagh) had adopted. It had been proposed chiefly with the view of accounting for certain remarkable phenomena, observed by Sir D. Brewster, in the reflexion of light from Iceland spar. These phenomena are *unsymmetrical* with respect to the axis of the crystal, and this circumstance induced Prof. M'Cullagh to suppose that there might possibly be a corresponding want of symmetry in the law of refraction. The experiment of Sir D. Brewster, as far as it goes, is against this supposition; and if further experiments should tend the same way (as most probably they will), it will follow that the unsymmetrical effects of reflexion do not arise from any cause which penetrates the interior of the crystal, but only from some peculiar structure of its surface. When the action of the crystal upon light is supposed to be symmetrical round its axis, the general law obtained by Prof. M'Cullagh reduces itself to that of Huygens; and in the case of a biaxal crystal, when the phenomena are supposed to be symmetrical with respect to three rectangular axes, the general law coincides with that of Fresnel.

'On the Barometric Compensation of the Pendulum,' by Dr. Robinson.—At the Manchester Meeting of the Association Prof. Bessel made a communication on the improvement of the astronomical clock, which, with other valuable matter, contained a proposal to compensate for the changes of rate produced by the varying density of the atmosphere. This appears in the Report of the Sectional Proceedings, and also at much greater length in No. 465 of the 'Astronomische Nachrichten.' At the time Prof. Stevelly remarked that I had not merely proposed, but applied this compensation twelve years ago*; and I should not have reverted to it, but that I think my method possesses certain advantages over that proposed by the illustrious astronomer of Königsberg, which entitle it to the preference in practice. It was long believed to be demonstrated, that the rate of a pendulum was influenced by the air's density only as far as it lessened the arc of vibration and diminished its gravity by buoyancy. The researches of Kater on the length of the second-pendulum are all vitiated by this mistake, which was discovered by Bessel during a similar investigation, in which he found, by using balls of different specific gravities, that the received buoyancy correction is too small. As early as 1825, and without any knowledge of what Bessel was doing, I had ascertained the same fact by comparing the rates of my transit clock with the barometric indications; and Col. Sabine gave the final proof of it by swinging the pendulum in a vacuum apparatus in the year 1829. The amount of it is far from inconsiderable; even with the mercurial pendulum of my transit clock, which weighs 21 pounds, and presents a very small surface, it is 0".36 for an inch change of the barometer. Now the remedy for this is obvious. If we attach a barometer to the pendulum, its fall transfers a cylinder of mercury from a point near the axis of motion to a greater distance from it; the time of vibration may thus be made to increase by the same amount that it decreases in consequence of the diminished density of the air. By placing the clock *in vacuo*, as Bessel proposes, (and as Sir James South has actually done for several years past,) the effect of resistance can be determined exactly, and the *diameter* of tube selected, which will nearly correct it. This is not mere speculation, for I have verified it by trial. The diameter which I selected for my tubes (0.1 inch) is not far from the truth. In the autumn of last year a fall of 1.6 inch produced *no appreciable change of arc*. The temperature, however, was then nearly stationary; but notwithstanding its changes during the interval from that time till my leaving Armagh, the arc has been between 1° 36′ and 1° 39′. Before the tubes were applied, the limits for the same period were 1° 42′ and 1° 51′. The changes in Bessel's own clock, though made by Kessel, a first-rate artist, are still greater, being from 1° 25′ to 1° 39′, an excess owing in part probably to the greater severity of a German winter. From what I have seen of the vacuum apparatus used by Sabine or South, I cannot refrain from expressing a wish that the experiment were tried of mounting a transit clock permanently *in vacuo*: such a clock would have many advantages, besides its exemption from changes of barometric pressure.

The Report of the Committee on Waves was presented by Mr. S. Russell, along with a short account of the Researches with which he had been engaged since the period of the former Report.—He had reduced the whole subject of inquiry into a more systematic and complete form than it had at an earlier period in these inquiries, and had found that the arrangement adopted had the effect of removing

* 'Astronomical Memoirs,' Vol. V., Dependence of Clock's rate on Barometer.

many of the seeming contradictions of wave phenomena, by showing that phenomena formerly identified were actually the result of conditions essentially distinct from each other, and that there exist orders of waves heretofore confounded, but now ascertained to differ in their origin, nature, and successive phases of existence. These different orders he had separately examined; he had determined their characteristic properties, and registered their phenomena, and proposed to arrange them in the following system:—

Orders: waves of translation—of oscillation—capillary waves—corpuscular waves. Characters: solitary—gregarious. Species: positive or negative—stationary or progressive. Varieties: free—forced; of which distinctions the instances are: wave of resistance, tide wave, aerial sound wave, stream ripple, wind waves, ocean swell, dentate waves, zephyral waves, water sound-wave.

The phenomena of these different orders had been examined, and in their mode of genesis, their laws of motion, their form, the nature of the forces by which they are transmitted, their duration, and the manner of their final extinction, they were found to differ essentially from each other. These various properties were then illustrated by a few examples. In the first order, the velocity is dependent on depth and height alone; in the second, on length alone, being perfectly independent of depth and height; in the third case it is constant; and constant also in the fourth case. In the first, also, the nature of the motion of each individual particle of water during wave transmission is, that the particle describes a semi-circle or semi-ellipse, and then relapses into repose, all the water particles to the bottom having an equal range of horizontal translation. In the second case there is no permanent translation, but a continuous series of revolutions in a series of complete circles, or rather in a spiral, and these revolutions do not extend to great depths below the surface. In the third case the disturbances of the particles do not extend deeper than the range of the capillary forces, excited by the disturbance of the superficial film on the surface of the liquid. And in the fourth class, the motions of the particles are only made sensible through the organ of hearing.

A paper was read on some Investigations connected with Equations of the Fifth Degree, by Sir W. Hamilton.

Captain Larcom 'On Contoured Maps.'—It is important that maps constructed by the government should exhibit the levels of the country in the most intelligible manner; showing heights not merely on the tops of hills, but round their sides, and through the valleys which traverse them. Such a system is offered by these contours. They are a series of horizontal lines, at a certain distance asunder, and at a certain height above a fixed datum. The datum most commonly used is the level of the sea, doubtless from the shore line being the limit of the land, and the point at which roads must cease, as well as from an impression that it is itself a level line; and therefore, as the first contour, the most appropriate and natural zero, from which to reckon the others. The Section were aware that it has been a point much discussed, whether the high water, the low water, or the mean state of the tide, offers the most level line. This is a point which it would be out of place to discuss here, but it may be stated that, in order to determine it, as far as Ireland is concerned, a series of lines has been very accurately levelled across the island in various directions, and permanent marks are left in all the towns, and on numerous public buildings; and at the end of each of these lines on the coast, tidal observations have been made every five minutes during two complete lunations. These observations, and the connecting lines of level, are now in process of reduction—the degree of accuracy attained is such that a discrepancy of .2 of an inch is immediately apparent—and from them we may expect many points of interest. The steeper the natural slope of the ground is, the closer together the contours, of course, will be, and the more oblique the road; where, on the contrary, the ground slopes very gently, the contours are farther asunder, and the road may be proportionally more direct. By examining the maps of the Irish Survey, on which contours have been drawn, it will be seen that they tell sad tales of the existing roads, every one of which ascends and descends frequently, instead of keeping on a gradual slope for its whole length. In order to exhibit these lines, it is proposed, instead of adding them to the original copperplate, which has a peculiar value as an official record of boundaries, to make a copy of the plate by the electrotype, for the purpose of receiving these lines. Contour maps were thought of early in the progress of the survey, but means were wanting for their execution; at present, however, the outline survey being complete, and the general map, or map of the surface, being in progress, affords a convenient opportunity, which it is hoped will not be lost.

Dr. Robinson inquired of Capt. Larcom whether the process of contouring the maps was proceeding, and how soon he supposed it would be completed for Ireland.—Capt. Larcom replied, that for the present it had been suspended.—Dr. Robinson observed, that whether he considered the value of this process in relation to the general interests of science, or the most important practical economies of the country at large, he could not but deeply deplore the suspension, temporary though he hoped it would be, of this great national undertaking; and he trusted that, before the British Association closed its present sitting, the most energetic steps would be taken to make such an application to government as would induce them to resume this most valuable work. He begged to inquire from Capt. Larcom, what the expense would probably be.—Capt. Larcom replied, that he should estimate it certainly at less than a farthing an acre.—Dr. Robinson: And the original cost was probably sixpence or eightpence.—Capt. Larcom said, perhaps sevenpence to ninepence.—Dr. Robinson: Then, at a cost of about one thirty-second part of the original expense, this invaluable addition to that splendid work, the Trigonometrical Survey of Ireland, could be accomplished. If it was determined finally to suspend this work, he should say that it was very like what the homely adage characterized as penny wise and pound foolish.

The Marquis of Northampton communicated a letter from Corporal Moyes, of Her Majesty's 17th regiment, containing observations of the thermometer at Aden, in Arabia, at intervals of two hours, night and day, during the month of June, 1843. His Lordship stated that Corporal Moyes had sent him this communication in consequence of his being an inhabitant of Northampton. It was gratifying to find a person in his humble sphere spontaneously taking an interest in matters of science, and amid his heavy professional duties, and under the enervating influences of that very hot climate, entering upon such a laborious series of observations. The letter also contained an offer to continue these observations if they should be deemed of any value. The Marquis had made an extract, exhibiting the most remarkable data furnished by these observations, which he laid before the Section.—Professor Lloyd said it was a curious coincidence that Aden had been one of the stations selected as proper for placing an observatory at, in connexion with the system of co-operation now at work in various parts of the globe, and that this station had only been abandoned from the difficulty of obtaining observers.—Dr. Robinson remarked that there was at that moment in the room, another person of the same rank, Corporal Melrose, whose assistance in many branches connected with the trigonometrical survey was deemed very valuable by Capt. Larcom and the other scientific gentlemen engaged in the survey.

Mr. Nott 'On Terrestrial Magnetism.'—This paper was in continuation of that on Electricity, read on Saturday. The author denied the existence of magnetic poles. The situation of the points of greatest intensity (commonly called poles) in magnets, he conceived to be merely a result of figure On a globular magnet the maximum intensity is, according to his experiments, situate about 75° from the equatorial zone. He maintained that the earth is a globular magnet, the maximum intensity of which is in lat. 75°, and that the magnetic poles of the earth have never yet been found. Terrestrial magnetism being considered as the effect of electric currents which move on the surface, will be affected by the irregularities of that surface, and hence the anomalies of the earth's magnetism. The author denied the conclusiveness of the arguments used to show that the earth is an oblate spheroid. He asserted that globular magnets, if freely suspended, would, by their mutual attraction, rotate and revolve round each other; and, finally, that the doctrine of gravitation must ultimately give way to that of universal magnetism.

Dr. Green read a paper 'On polishing the Specula of Telescopes.'—His process, for which he received the gold medal of the Society of Arts, ten years ago, closely resembles, on a small scale, that which has been adopted and perfected by the Earl of Rosse.

Lord Rosse expressed his pleasure at finding that Dr. Green had turned his attention to this subject, in which so much remained for trial. The model which had been exhibited had in it all that was required to obtain perfect results; but the most perfect machinery was insufficient, without minute and scrupulous attention to detail in every part of this most delicate process. With respect to its theory, he did not attempt any rigorous developement, but was rather guided by general views; of which the most important is, that in polishing there is a progressive lessening of curvature, the degree of which changes with the lateral motion of the polisher; and that by a proper adjustment of it he had obtained a surface not differing sensibly from the parabolic. It might be described as being in a state of transition, but its character was always the same; and he had found this the case by experiments on mirrors of very different magnitudes, so that he conceived it to be practically established. He hoped Dr. Green would continue his researches, and he offered whatever information he had to any one disposed to engage in the same pursuit.—Dr. Robinson remarked on the similarity of Dr. Green's model to Lord Rosse's machinery. In fact they had found in their practice the necessity of satisfying the same conditions, only one important difference being between them. Dr. Green, as all others with whom he was acquainted, had placed the speculum on the polisher. Lord Rosse, by reversing this arrangement, had obtained many important advantages, of which one of the most striking is the power of keeping the mirror at a given temperature. Dr. Robinson feared that it would be impossible to give any rigorous demonstration of the parabolic form obtained by certain proportions of the motions, for it depended, not merely on the amount of rubbing surface, but also on the toughness of the pitch and the elasticity of the polisher and specula, which obviously were called into play when one overhung the other, in a way that could scarcely be brought under analysis. All these results, he feared, must be experimental. In illustration of what Lord Rosse had said respecting the surface being in a state of gradual transition of curvature, he might mention that he had found, by extending the stroke of the second excentric to (if he recollected right) 0.45 of the breadth of the mirror, he had figured the convex speculum of his large Cassegrain (fifteen inches aperture) to be hyperbolic, or at least to be aplanatic, with a sensible improvement of the instrument's performance. The speculum was three inches diameter, and took forty minutes to polish it.

WEDNESDAY.

The Rev. Dr. Robinson 'On determining the Index Error of a Circle by reflexion of the wires of its telescope.'—The observations made with an astronomical circle depend on an accurate determination of its index error, for which various methods have been adopted, all more or less limited in applicability or defficient in accuracy. The method proposed in the present notice appears so convenient and accurate, that Dr. R. thought it may be useful to lay before the Section a few details respecting its precision. Illuminate the lines in the focus of the telescope behind, so as to leave the field dark; the rays forming an image of them, emerge parallel from the object glass, and if reflected from a mercury trough back into the telescope, will form an image of the lines, visible along with them. If that of the declination line be made to coincide with it, the optic axis of the telescope is obviously vertical, and the reading of the circle gives the nadir. When Dr. R. found Kater's collimator uncertain, he made an illuminating eye-piece, and essayed this method with tolerable success in 1832, but as the power was but 25, he did not pursue it further than was necessary to obtain a value of his latitude. About three years since his attention was recalled to it by Mr. Henderson, who was using it with great advantage; and he made the

necessary alteration in the observing eye-piece (power 250,) to avoid the necessity of changing it when illuminating. He now finds this method much superior to the pole star observation in expedition, not inferior in certainty, and so easily practicable, that he in general determines the index correction at the close of each night's work. From the obvious fact, that the angular movement of the image is *twice* that of the telescope, the precision is double that of a star, independent of the fluttering of the latter. Dr. R. would also call the attention of astronomers to the fact, that in determining the division corrections of a circle, it must be remembered that they are occasionally variable with the position of the instrument, and with its temperature. It will, for instance, occasionally be found that the mean of six microscopes will differ from that of two, or of twelve from four by unequal quantities, when the readings of the index differ 180°; and this throws a suspicion on the usual modes of examining divisions. The difference is far too great to be attributed to the error of observation, and appears to occur in every circle of which a detailed examination has been published. In the Armagh circle, Dr. R. has found a few cases of the effect of temperature. The most prominent is that of the four divisions used for the nadir point, and it is remarkable that if this had not been attended to, he would have found for α Lyræ and α Cygni, parallaxes very nearly equal to those assigned them by Dr. Brinkley, Bishop of Cloyn. These remarks seem to furnish an argument in favour of the use of moderate sized instruments, and the improvement of engine division.

The Rev. T. KNOX 'On the Quantity of Rain which falls in the S.W. of Ireland and in Suffolk, with the wind at the several points of the compass.'—The Rev. Prof. LLOYD gave an account of the results of a series of observations, made by the Rev. T. Knox and the Rev. H. Knox, on the relative quantity of rain which falls with different winds in England and Ireland. The instrument employed in these observations was contrived by the Rev. T. Knox, for the purpose of registering the amount of rain which falls at a given place with the wind in different points of the compass. A description of its construction has been given in the Proceedings of the Royal Irish Academy. The present communication contains the results of a series of observations made with two of these instruments, one of which was erected at Toomavara, in the county of Tipperary, and the other at Monk's Eleigh, in Suffolk. The observations embrace a period of one year, and are illustrated with diagrams, which represent the results obtained at the two stations, for the whole year, for each quarter of the year, and for the individual months. The following table gives the results for the entire year, expressed in inches.

	S.	S.W.	W.	N.W.	N.	N.E.	E.	S.E.	Total.
Toomavara.	4.249	12.696	8.156	2.640	3.115	3.078	3.101	3.523	40.552
Monk's Eleigh.	2.674	2.756	1.571	2.392	2.776	2.027	3.092	1.708	21.796

It appears, from this table, that while the total amount of rain which falls in Tipperary is nearly double of that which falls in Suffolk, there is likewise a wide difference between the two stations as to the quantity which falls with different winds. In fact, nearly one third of the whole amount of rain falls at the Irish station during the prevalence of the south-westerly winds; while, at the English station, there is a much nearer approach to equality in the amount of rain borne by different winds. This prevalence of rain with the south-westerly wind is distinctly marked in every season of the year at the Irish station; while, at the English one, each season is characterized by an excess of rain from a different point of the compass, producing a near approach to uniformity in the results of the entire year. It is to be observed, that these results are integral effects. A comparison of them with the times of continuance of the respective winds, gives the *raininess* (if it may be so called) of the several winds.

The PRESIDENT inquired whether, since the wind was known, at several places, to blow periodically from two generally opposite points, and only to change abruptly through the intermediate points, this would not interfere with the continuity of Mr. Knox's curves. —Prof. LLOYD replied that Mr. Airy had noticed such a peculiarity of the wind at Cambridge; but Mr. Knox's mode of marking the quantity of rain that falls would not fail even under these circumstances.

'An Account of an extraordinary Tide at Arbroath,' by Mr. Brown.—The ordinary neap tide at Arbroath rises from eight to nine feet, but on July the 5th, 1843, an extraordinary phenomenon presented itself. The moon was in perihelion at two o'clock, and the evening tide was suddenly raised, at the time of high water, to nine and a half or eleven feet, again sunk for about ten minutes, and was raised again, there being a series of fluxes and refluxes. He could not tell whether the phenomenon commenced with a rising or a depression, nor did he know the horizontal length of the wave. The sea was perfectly calm, but vessels which were entering the port perceived a current stronger than usual. In the evening there was a violent thunder-storm. Persons who had observed the appearance before, accounted for it on the supposition of a storm in the Atlantic from the S.W.

Mr. HUNT called attention to a peculiar condition of the tide on the 5th of July, in the Mount's Bay, Cornwall. The tide had receded for about half an hour, when it was observed to flow again, and continued to do so for about ten minutes, when it again receded. This was three times repeated. It was observed that this took place over an extensive line of coast, from the Land's End to Port Leaven. Particulars of the phenomenon, as observed in several places, were collected at Penzance.

'Remarks on Abnormal Tides,' made by Mr. Thomas, of Falmouth.—These remarks had been made in consequence of seeing, in a Report of the Association, the cause which had been assigned by Mr. Russell for the double tides observed in the Frith of Forth, viz. the interference of the northern and southern tidal waves. It appeared to the writer, that this cannot be the rationale of the phenomena, since they occur in places where no such cause exists, as in Falmouth; besides, he thinks that if this be the cause, it should be observed at Leith, where the meeting waves differ two hours in time, and not merely high up in the Frith. He thinks a difference in velocity at different parts of its course, and the influence of strong winds, sufficient to account for the phenomena.

Mr. SCOTT RUSSELL said, that these remarks applied to the report of last year, and showed the necessity of those very investigations which had actually been made since that time, and which he had reported to this Section on Saturday. During the past year they had traced the double tide to Leith, and even further down, and it is quite obvious that the report of this year decides the point, though in a different manner from that supposed by the writer. In the case of the Frith of Forth, the cause was fully ascertained. The same effect may, however, arise from a variety of causes: currents, reflected tides, tides arriving by different paths, were all causes that might produce double tides; thus they had observed, in many instances, triple tides in the Forth, which were found to arise from a sudden fresh flood in the river, which filled up the hollow between the two, and made a third. Now, if there be but a single tide the same occurrence of a flood might convert it into a double. Again, wherever a tide enters a harbour by two channels, one of which is longer than the other, we may expect double tides. In inland seas, too, such as the Irish Sea and German Ocean, the tide is reflected from one shore and meets the direct wave near the other, and thus a double wave will be produced. There is one remarkable difference, which excludes the tides of the Frith of Forth from all these categories—it is, that we can demonstrate that *one tide is twelve hours older than the other*, and that the alternation of high and low waves from this cause produce the phenomena, so that by discussing the tides in reference to the astronomical phenomena, we arrive at this conclusion. In reference to the first paper, the appearance at Arbroath was not tidal at all. Similar phenomena had been observed elsewhere, on the coast of Scotland, and in all are described in the same manner. They are now engaging the attention of a distinguished geologist in Scotland, and it is supposed that they are the consequences of the subsidence or elevation of the coast. Others think that they arise from submarine volcanic explosions; and the undulations of the atmosphere, which were observed immediately after, would strengthen this opinion.—Mr. HOPKINS had employed the agency of such waves produced by submarine elevations for many geological purposes, in particular to account for the transference of boulders. A submarine explosion would produce a wave of the first order, which they had shown to be a wave of translation, and which in a calm sea would raise and carry a body a considerable distance.—Prof. LLOYD remarked on the importance of the elaborate series of observations which had been made by Mr. Russell; no doubt the great source of double tides is the one alluded to, the entrance of the tide by different channels. These causes had been noticed in very early times. The port of Batsha attracted much notice in the time of Sir Isaac Newton. In it there are two channels, the tide entering in two branches, one of which is sometimes at high water when the other is low; they thus interfere with and annihilate each other's effects; at other times they only alter the effect, and produce double tides. Reflexion of wave from opposite coasts is of exactly a similar nature. Mr. Airy, for the purpose of his mathematical investigation of the laws of tides, had caused a series of observations to be made round the coast of Ireland by the Ordnance Survey every five minutes for several months in the year. The results have thrown great light on the nature of tides: several anomalies have been remarked; in the port of Wexford they had found, instead of two tides in the day, a triple, and sometimes a quadruple, tide. The reason assigned for this by Prof. Airy is, the tide is usually the resultant of the solar and lunar tides, and the place and degree of the component tide depends on the two, and is altered by the elongation of the moon from the sun. In ordinary circumstances they will not interfere, but sometimes solar and lunar tides are so distinct, that they become separately visible, and thus double and triple tides are produced.—Mr. Russell said, that Mr. Whewell and himself at a former meeting had discussed this subject; and he had formed a conjecture that the cause might be that supposed by Mr. Airy, and their first observations had been applied to ascertain whether it were so. If this were the cause, the appearance of the phenomena should depend on the hour angle of the moon; they had found that it did not, but was visible at all stages of the tide, at neap as well as spring; therefore, though this may account for several cases of double tides, particularly by taking into account the dislocation which he had explained, it was not applicable to the Frith of Forth. It appeared of the highest importance to endeavour to trace the course of the undulations which were observed at Arbroath and other places, in order, if possible, to ascertain its cause.

Mr. C. WARD presented a new musical instrument. This peculiar modification of the flute had been placed in the exhibition room during the week, and it was now exhibited to the Section, and seemed to attract much attention. The chief excellency of it appeared to consist in the arrangement and mechanical contrivances connected with the keys.

The PRESIDENT, on closing the Section, briefly addressed it; congratulating it on the number and importance of the communications that had been made to it. He said, that although he had been present at many meetings which had been more numerously attended, he did not think he had been present at any in which the work done had been more instructive or more practically important.

SECTION C.—GEOLOGY AND PHYSICAL GEOGRAPHY.

TUESDAY.

Mr. MURCHISON exhibited a Relievo Map of England and Wales, coloured geologically under his own direction. He pointed out the accordance between the physical features of the country and the boundaries of particular strata, and stated generally the dependence of geographical contour upon the geological structure of any region and the mechanical forces to which the rocks had been subjected.

Dr. CARPENTER read an elaborate paper on the microscopic structure of the shells of various mollusca, of the Echinordemata and Crustacea—which was also read on Monday in Section D. (*ante*, p. 829).

Mr. E. HALL exhibited his Maps and Sections illustrating the geological structure of Derbyshire and the Lancashire Coal Field.

WEDNESDAY.

'On the Geology of Corfu,' by Captain Portlock.—Mr. Phillips read the following extract from a letter dated July 9, 1843:—"The secondary limestone here is remarkable: some of it has strongly the aspect of our Irish hardened chalk, and abounds in flints; but other portions resemble some of the varieties of Irish mountain limestone. Fossils are not abundant; but I have obtained two species of terebratula from the little fortified island of Ordo, close to us, and they appear to resemble cretaceous species,—certainly not mountain limestone,—though Dr. Davy in his description of these islands seems to consider it the latter. By the autumn I hope to settle this question completely, which will decide the age also of a remarkable conglomerate, containing pebbles of the limestone and flint, and probably tertiary, though called secondary by Dr. Davy."

Prof. E. Forbes exhibited a 'Map of Lycia,' by Lieut. Spratt.

Major L. Beamish, F.R.S., read a paper 'On the apparent fall or diminution of Water in the Baltic, and elevation of the Scandinavian Coast.'—During a journey to Stockholm in the early part of the present summer, the author had occasion to see and hear much respecting the diminution of water in the Baltic, a practical and personal evidence of which he experienced in the harbour of Travemunde, on the 4th of May, by the sudden fall of water at the port, which took place very rapidly, and to a great extent. The steamer, which ought to have left Travemunde on the 18th, was detained by this cause until the 21st. It is well known, that although without tide, the Baltic is subject to periodical variations of depth, but the water has fallen during the present summer, to a degree far below these ordinary variations: and the fact was considered so remarkable as to be thought worthy of being brought before the notice of the Swedish Academy of Sciences, by Baron Berzelius, in July last. This fall or diminution of water was already perceptible in the summer of 1842, since which, the Baltic has never returned to its average mean height: but, on the contrary, has diminished, and there seems now no probability that the former level, or the height of 1841, will be again attained. Meantime, no perceptible change has taken place in the waters of the North Sea, and the unscientific observer asks, what has become of the waters of the Baltic? The answer is probably to be found in a simultaneous phenomenon apparent on the Swedish coast, the gradual elevation of which has been satisfactorily proved by the personal observation of Mr. Lyell. Recent observation, however, would seem to show, that this elevation does not proceed at any regular or fixed rate, but, if he might use the expression, *fitfully*, at uncertain periods, and at a rate far greater than was at first supposed. At the same meeting, when Baron Berzelius drew the attention of the Swedish Academy to the diminution of water in the Baltic, a communication was made from an officer who had been employed on the south-west coast of Sweden, in the Skärgård of Bohuslän, north of Gottenburg, giving evidence of the recent elevation of that part of the coast, and stating, that during the present summer, fishermen had pointed out to him, near the Maloström, at Oroust, *shoals* which had never before been visible. The elevation of the Swedish coast forms a striking contrast with the unchanged position of the contiguous coast of Norway, which, as far as observation has been hitherto extended, has suffered no change within the period of history, although marine deposits, found upon the Norwegian hills, at very considerable elevations above the level of the sea, prove that those parts were formerly submerged. More accurate information, however, will, before long, be obtained on this interesting point, as a commission has been appointed by the Norwegian government to investigate the subject, and marks have been set up on the coast, which will, in a few years, afford the desired information; meantime, the Scandinavian peninsula presents an extraordinary phenomenon; the western, or Norwegian side, remaining stationary, while the south and east, or Swedish sides, are rising, and that, as the author had endeavoured to show, at no inconsiderable rate.

Dr. Langberg, of Christiania, confirmed the statement made by Major Beamish, as to the unchanged position of the Norwegian coast, within the period of history, as far as observation has hitherto gone, as also the steps taken at the instigation of Prof. Kailow, and the Physiographical Society of Christiania, to investigate the subject with greater accuracy.—Mr. Lyell observed, that if the rate of upward and downward movement of the land in Scandinavia could be proved to take place irregularly, and sometimes with considerable rapidity in a short time, it would remove many difficulties in the explanation of these phenomena, by the hypothesis of a surface-movement. He then alluded to the buried hut (described by him in the *Phil. Trans.*) at Södertelge, near Stockholm, above which regular deposits, 24 feet in thickness, were found, containing marine and fresh-water shells, such as now inhabit the brackish waters of the Baltic. The position of this hut can only be reconciled with the belief that Scandinavia was peopled within the last 5000 or 6000 years, by supposing a greater rate of movement in the land than that experienced within the last few centuries near Stockholm.—Mr. Hopkins remarked, that changes in the relative level of sea and land might be due either to uncertain and convulsive movements, such as earthquakes, or to some steady cause, such as a change in the temperature of the globe. He considered the external temperature must have been much lower during the glacial period than at the present time; and this difference was too important to be accounted for by any change in the configuration of the surface. Any great change of temperature at the surface would also affect the interior to some point, not very remote, but sufficient, in case of any subsequent augmentation of temperature, to cause an expansion and elevation of the surface, varying according to the conductive power of the rocks in different parts.

The Secretary, Mr. F. Jennings, read a paper 'On some Geological Phenomena in the vicinity of Cork.'—On many parts of the coasts of the counties of Cork and Waterford, there are evident proofs of the land having subsided, peat and bog-wood being dug out of the strands at the edge of the water during ebb-tide—and every storm washing large trunks of trees on the beach which, in some places, are visible *in situ* below the lowest water of low tides, the oak, hazel, and birch, being the most abundant.

'On the occurrence of a Bed of Sand, containing recent Marine Shells, on the summit of a granite hill, on the coast of the county of Mayo.'—Mr. Griffith described the peninsula, called the Mullet of Erris, which is situated W. of Blacksod Harbour, on the N.W. coast of Mayo.—The northern part presents some hills of mica slate and quartz rock, of moderate elevation, the most important being Aughalasheen, 434 feet high. The central part of the peninsula is low and uninteresting, the principal elevation not exceeding 120 feet, the general level varying from 20 to 60 above the level of the sea. At the southern extremity is Termon Hill, the summit of which is 342 feet above the level of the sea. The walls of this peninsula are quartzite, mica slate, metamorphic slate passing into gneiss, hornblende slate, and granite. The quartzite occurs at the northern extremity, and forms the conical hill of Aughalasheen. The principal tract of mica slate lies to the N. and W. of Belmullet, to the S. of which it exhibits a highly crystalline and metamorphic structure; and the strata present alternations of gneiss, with large crystals of feldspar; the beds are not thick, but frequently present a tortuous arrangement. The metamorphic strata extend southward from Belmullet, to the S. of Elly Bay, a distance of seven miles, where mica slate again commences, and extends to the base of Termon Hill, which is composed of highly crystalline grey granite, arranged in very large tabular masses, which affect a nearly horizontal position. Some of the masses assume a rhomboidal form, but neither in the external aspect nor in the internal structure do they exhibit appearances of a stratiform arrangement. In fact they are precisely similar to the tabular granite of Slieve Donard and other granite mountains in the county of Down. On the shore at Port Glash, at the north-western base of Termon Hill, there is a very fine junction of the granite, with the metamorphic mica slate. The division of the two rocks is quite clear, and well defined, without the least appearance of gradation. In some places, the two rocks do not adhere, the slaty rock being slightly disintegrated near the contact. In others, angular fragments of the schistose rock are enveloped in the granite. There are only a few small granite veins penetrating the slate, which are composed of feldspar, quartz, and mica, with interspersed garnets, which are abundant where the veins become narrow, near their termination. To the S.W. of the junction the schistose rock forms a narrow band between the granite and the sea. A considerable portion of the surface of the Mullet is covered with sand; it is white and siliceous, and contains at its base a great number of marine shells. The varieties are—*Purpura lapillus, Turbo rudis, Patella vulgaris, Cardium edule, Littorina littorea, Ostrea edulis, Pecten varians.* On the W. coast of the centre of the peninsula, N. and S. of Elly Bay, the surface of the country is covered by this sand, which forms considerable hills, varying from fifty to eighty feet high, the whole being formed of sand without any admixture of mud. The marine shells are most abundant in this mass towards the base. In those positions where the sand has been blown away so as to form valleys among the sand hills, the surface is thickly strewed with both marine and land shells, so as to give the appearance of being thus intermixed; but this is not really the case, as on carefully examining the sections of the sand, no land shells were found, though the marine, particularly the *Patella vulgaris*, were abundant; so that we must consider the land shells as merely superficial, and that the animals lived among the tufts of *Arundo arenaria*, with which the greater part of the surface is covered. The sand is not confined to the low ground: a bed of it, from six to ten feet thick, occurs on the sides and top of the hill of Termon, as high up as about 300 feet above the level of the sea. This sand bed contains in abundance all the marine shells already enumerated, together with land shells, the same as the sand on the low ground. This elevated sand bed also presents valleys in those parts where the sand has been blown away by winds, and sometimes the bare granite rock is exposed, but thinly covered by the shells, after the sand was blown away. Hence we must conclude that this sand, with its marine shells, once formed the bed of the ocean, and that the whole mountain, with its bed of sand on its surface, has been elevated to its present position by the protrusion of the granite; and if this be admitted, it becomes evident that the granite must have been elevated within the period of the recent shells.

Mr. Nevins mentioned the occurrence of a submarine forest at the mouth of a small stream in Tramore Bay, showing a recent change of level in a direction contrary to that indicated by the raised beaches.—Mr. Phillips also mentioned evidences of local elevation and depression, occurring in the space of one mile, on the eastern coast of Yorkshire, from which he inferred that the movement had not been uniform, but oscillating.—Mr. Lyell stated, that he believed the complicated evidence of changes of level during the latest geological periods, both in Europe and America, would be better accounted for by changes of climate, arising from a different geographical distribution of land and water, than by the hypothesis of central heat, or by the supposed passage of the solar system through planetary spaces of differing temperature. If the whole of Europe had been at any time submerged, other tracts now beneath the sea must have been elevated, and a change of temperature might have been produced similar to that which still obtains in the southern ocean.—Mr. Hopkins observed, that the difference in the elevation of raised beaches in different parts of Ireland did not prove an unequal elevation of the land; the beds of oysters, &c. might have originally occupied different depths in the sea; and the beaches might have been formed at different periods. He did not think that any change in the distribution of land and water would account for the depression of temperature during the glacial period. The Andes were the chief cause of the low temperature prevailing along the eastern coast of South America; and such mountains could not have existed in Europe, since the level of the land had been proved to be lower; and if the whole of Europe were submerged, he thought the temperature of the region would rather be raised than depressed. With respect to Poisson's hypothesis, he stated that such a movement of the solar system was much more consistent with analogy than the usual assumption of its rest; and it was the only hypothesis which would account for geological

changes of such an order and magnitude as those under consideration.

Section D.—Zoology and Botany.

TUESDAY.

Prof. Owen read a continuation of his Report on the Fossil Mammalia of Great Britain.—In the previous parts of the Report he had treated of the Carnivora and Marsupiata: in this he confined himself to an examination of the vegetable-feeders. Remains of the mammoth, of which he believed there was only one species, the *Elephas primogenitus* of Cuvier, had been found in abundance in various parts of Great Britain, and not less than three thousand teeth had been found in various places. These teeth varied in appearance with age, and had thus led to the supposition that there were other species of mammoth. The remains of the mastodon found in Suffolk and Yorkshire, were undoubtedly identical with those of the miocene beds of France, thus making but one European species, the *Mastodon angustidens*. Bones of an extinct species of rhinoceros had been found in various parts of Great Britain. It possessed two horns, and was undoubtedly different from existing species. The teeth also of a species of hippopotamus had often been found, as in the cave at Kirksdale and other limestone rocks. In the Isle of Wight two distinct genera of pachyderms had been found; the Palæotherium and Anoplotherium. Of the former genus, there appears to have been six or seven species, and of the latter three. The teeth and fragments of bones of more uncommon forms still, had been found in the Isle of Wight and in Suffolk, which had been referred to animals of distinct genera, and called Chæropotamus and Hyracotherium. Remains of species of the genus Sus, had also been found by Dr. Buckland. Of the Ruminantia, the Irish elk as it had been called, has been also found in England. In structure this animal resembled the fallow deer, but was larger. The remains of a cervus, not differing from the red-deer, were frequently found with the mammoth and other animals. Remains also of the roebuck, and the goat and sheep, had been found associated with those of the mammoth. Remains of the aurochs, or European bison, had been found in various parts of England, and also of Ireland. According to Mr. Ball, these remains should be looked upon as those of an extinct species. In concluding his Report, Prof. Owen stated, that he never should have commenced these labours, nor could he have continued them, but for the suggestions and assistance of the British Association.

Mr. H. E. Strickland then read a description of a 'Chart of the Natural Affinities of the Insessorial Order of Birds.'—At the Glasgow meeting, in 1840, Mr. Strickland had first proposed his plan for exhibiting the affinities of allied organic forms, by a process analogous, in some respects, to that of map-making. He now exhibited a large chart constructed on this plan, and showing the affinities of the genera in the order Insessores. The name of each genus is inscribed in an oval cartouche, and its affinities to other genera are indicated by connecting lines, the lengths of which lines are approximately proportionate to the remoteness of the affinities. Those genera which are most nearly allied are connected by a line of *one* degree, or unit, in length; and those less closely allied, by a line of *two* degrees. Genera so distant as to require to be placed in different *sub-families*, are united by lines of three or four degrees; those in different *families* by lines of five or six degrees; and those in different *tribes* by lines of seven or eight degrees. A line is drawn round those genera which constitute one sub-family, and the area thus inclosed is coloured, the surrounding space being left white. The sub-families which belong to the same family, are distinguished by the same colour; and the families are inclosed within a dotted line; while the boundaries of the tribes are marked by a red stripe. The names of the respective groups are inserted; and the whole assumes the appearance of a cluster of islands depicted on a map. The author expressed his belief that the true affinities of organized beings may be expressed with greater accuracy and conciseness by this method than by any other with which he was acquainted. Being a purely inductive process, the details of any branch of natural history may be in this way worked out and depicted without recourse to any theoretical assumptions. One result of it seems to be, that the true affinities of organic structures branch out irregularly in all directions, and that no symmetrical arrangement or numerical uniformity is discoverable in the system of nature when studied independently of preconceived theory.

Prof. Forbes thought Mr. Strickland's map a good one, and might prove useful; but as a system of classification, it wanted principles to proceed upon.—Prof. Owen approved of Mr. Strickland's smaller groups, and hoped he would prosecute his researches on this subject. Every part of every animal must be known before we could have a perfect system. Pallas had given an idea of the animal kingdom, by supposing it a network drawn up in the form of a cone, of which man formed the apex. He was disposed to adopt this view, supposing also that there were other lower points of the net, in which an organization was completed which did not appear in man. He rejected altogether quinary, circular, and other systems.—Dr. Lankester stated, that there were two objects in classification, the one that of arranging objects so that they might be easily examined and identified, and the second, that of placing nearest to each other objects which were most alike. The endeavour to embrace these two ends in one system had been the cause of all the differences among systematists. He thought Mr. Strickland's remarks too severe on artificial systems, as these must always be of great use when properly applied, and only to be condemned when assuming to occupy the position of a natural arrangement.—Mr. Ball condemned the quinary system and approved of Mr. Strickland's mode of arriving at his conclusions.

Dr. Allman read a paper 'On the genus *Cirropteron*, Sars.'—In this communication it was maintained, that the genus Cirropteron had no real existence, having been founded by Sars on the imperfectly developed condition of a gasteropodous mollusc. Dr. Allman had himself bred from the ova of a gasteropodous mollusc animals referable to Sars' genus; and the singular ciliated disks with which the larvæ of buccinum, trochus, &c. are furnished, have been noticed by other observers. Dr. Allman called attention to the remarkable analogy which exists between these molluscan larvæ and the Rotiferæ, and advocated the necessity to the zoologist of an accurate knowledge, not only of the anatomy of the various organized beings which come under his observation, but of their history during the entire period of their existence.

WEDNESDAY.

Dr. Allman read a paper 'On certain Peculiarities in the Arteries of the Six-banded Armadillo.'—The peculiarities noticed in this communication consist in a remarkable arrangement of vessels analogous to what has been already observed in the sloths, in the two-toed ant-eater, and in the lorises, and is characterized by the arteries having a tendency to *divide* rather than ramify, from which it results, that instead of a diffusely branched arterial distribution, the larger branches suddenly break themselves up into a number of small vessels, which anastomosing but sparingly, give rise to a series of vascular pencils, from which the ultimate supply of blood to the organs is derived. This remarkable arrangement is chiefly displayed in the arteries of the posterior extremities, in the caudal and in the epigastric arteries.

Prof. Owen observed, that this structure in the armadillo was not like that in the Cetacea, which was used as a reservoir of blood for those animals when under water. This was a valuable addition to our knowledge of the comparative anatomy of mammalia.—Mr. Ball observed, that this arrangement had been supposed to be peculiar to slow-moving animals, but the armadillo was a very quick-moving creature.

Dr. Allman then read a 'Synopsis of the Genera and Species of Zoophytes inhabiting the fresh waters of Ireland.'—The fresh-water Zoophytes of Great Britain have hitherto been all included under the following four genera, Hydra, Cristatella, Alcyonella, and Plumatella. Of these, Hydra is made to include four British species,—Cristatella one, Alcyonella one, and Plumatella has been described as containing three species. Of the above nine species, the author was of opinion that two must be erased, viz., the *Hydra verucosa* of Templeton, which appears identical with *H. fusca*, and the *Plumatella gelatinosa* of Flemming, which is evidently the same with Blumenbach's *Tubularia sultana*. To the seven species which remain, Dr. Allman was enabled to add five, of which four do not appear to have been before noticed and the other is only found described in the Fauna of the Continent. The zoophytes at present included under Plumatella were distributed in the synopsis between two genera,—those with crescentic disks being retained under Plumatella, while those whose disks are circular were removed to Fredericella, a genus established by M. Gervais for this form of ascidian zoophyte. An important addition now made to the British zoophytes is Paludicella, discovered by W. Thompson, Esq. at Lough Erne, in the autumn of 1837, and since obtained abundantly by Dr. Allman in the Grand Canal near Dublin. In October, 1842, a hydroid zoophyte of much interest was discovered by Dr. Allman in the Grand Canal, Dublin; it is referable to no known genus, and occupies a position between Coryne and Hermia. For the reception of this zoophyte, therefore, he has been obliged to form a new genus, to which he has given the name Cordylophora. The synopsis, therefore, embraced several new species and two genera, now for the first time added to the British Fauna.

Prof. Forbes remarked on the value of this paper. In Fredericella we had the analogue of the marine genus Coryne, as we had in Hydra, that of Sertularia. This paper pointed out the impossibility of the existence of such a genus as Hassell's Echinochorium.

Dr. Allman read a paper 'On a new Genus of Terrestrial Gasteropod.'—This highly interesting animal was found last autumn in the county of Derry by Mr. Andrews, of Dublin. Dr. Allman examined it, and convinced himself of its entire generic distinctness and importance. It constitutes a connecting link between Arion and Limax, differing from the former in the possession of a well-developed internal shell, and in the position of the genital pore, which is placed, as in Limax, behind the root of the right small tentacle; and from the latter, in the orifice to the respiratory sac being in the anterior margin of the shield, and in its truncated glanduliferous tail. To the new genus, which it was therefore necessary to constitute for the reception of the gasteropod, Dr. Allman gave the name Geomalacus; and to the present species, the only one of the genus as yet discovered, the specific name maculosus is appropriated.

Mr. Babington presented three new additions to the Flora of Cork. They consisted, first, of *Erica Mackayii*, which had been previously found only in Connemara; second, the *Erica cilians*; and third, the *Dabœcia multifolia*.

Dr. Lankester exhibited specimens of the *Calothrix nivea*, and also of the red deposit formed by a species of animalcule belonging to the genus Astasia, and which he had previously described as inhabiting sulphureous waters. These specimens he had found on the shore near Cove, in a cavity of the limestone rock. The water in which they were found was highly impregnated with sulphuretted hydrogen. It did not appear to arise from any spring, and the gas was probably produced by the decomposition of the sulphates of the sea-water, in contact with the decomposing vegetable matter, in the cavity where it was found.

Mr. Hunt had observed living animalcules in waters impregnated with sulphuretted hydrogen. He had also succeeded in forming sulphuretted hydrogen by placing sulphates in contact with decomposing vegetable matter.

The Rev. W. Hincks read a communication from Dr. Wood, 'On the economical Uses of certain Lichens.'—The object of this paper was to draw attention to the fact that the *Lecanora tartarea* and *parcelea* grew in abundance about Cork, and that the collecting of these lichens as dyes might become a source of employment for the poor. Specimens of the plants were then exhibited.

Mr. Hincks exhibited the volumes of Sowerby's Fungi, which had been in the possession of the late Mr. Templeton, and which contained many valuable manuscript remarks.

Mr. Patterson stated that Mr. Templeton might be regarded as the father of natural history in Ireland. Dr. Drummond was his pupil, and to Dr. Drummond they were indebted for the Natural History Society of Belfast.

The Secretary read a paper from Mr. Waterhouse, of London, 'On the Classification of Mammalia.'—In this paper the author proposed a new arrangement, differing considerably from that of previous authors.

The paper was illustrated by several diagrams exhibiting the relation of the families and genera.

Prof. FORBES exhibited specimens of animals which had been dredged up on the coast of Ireland by Mr. Hoskins. He then read a communication from Mr. Alder, describing a new species of mollusc found at Dalkey Island, near Dublin, having a shell in all respects similar to that of the genus Rissoa, from which, nevertheless, the animal differs materially. The most striking peculiarities were the presence of four tentacula, and the position of the eyes, which are placed on the back, at some distance behind the tentacula, and not at their base, as in Rissoa and the allied genera.

Prof. Forbes also read a paper by Messrs. J. Alder and A. Hancock, 'On some new Species of *Mollusca nudibranchiata*, with Observations on the Structure and Developement of the Animals of that order.'—The species described were a beautiful Calliopœa, the first discovered in Britain, and four new species of Eolis. The authors then gave an account of their observations on the developement of the ova in that order, stating the remarkable fact of these animals undergoing a complete metamorphosis, and being, in their first or larva state, furnished with a nautiloid shell, which afterwards entirely disappears. They next alluded to some interesting anatomical peculiarities, describing the gastro-vascular system in Eolis, and the ejection occasionally of some curious bodies from the ends of the papillæ, apparently connected with this system. The organs of the external senses were next remarked upon, and the existence of organs of hearing in this class of gasteropodes for the first time pointed out. They consist of small capsules filled with very minute concretions, which, in the living animal, are in a continued state of oscillation. Several reasons were also adduced for supposing that the dorsal tentacula of these animals are the true organs of smelling. The whole was illustrated by a series of drawings by Mr. Hancock.

Mr. THOMPSON observed that these researches had doubled our knowledge of the number of species of Nudibranchiata Mollusca.—Prof. OWEN said these papers cleared up the difficulty that had hitherto been experienced with regard to the developement of the Nudibranchiata Mollusca. Many of the young of these animals had been described and figured as belonging to very different genera and species. Their whole structure was now made out by the researches of Messrs. Alder and Hancock.

Mr. THOMPSON called attention to the circumstance of the nidification of the Woodcock in Ireland, with especial reference to Tullamore Park, in the county of Down, the seat of the Earl of Roden. Here the species was first observed to remain throughout the summer, and rear its young, in 1835, since which period the numbers so remaining have been gradually on the increase; and in the present year twenty-two nests have been found, so that now woodcocks are as plentiful in summer as in winter in the park.

Mr. THOMPSON noticed some additions to the Fauna of Ireland, comprising altogether, in the various classes (excepting Insecta, Entozoa, and Infusoria), about sixty species.

Mr. THOMPSON read his report 'On certain portions of the Invertebrate Fauna of Ireland,' drawn up at the request of the Association. It contains ample catalogues of the Irish species of Mollusca, Cirrhipoda, Echinodermata, Acalepha, Zoophyta, Annelida, Crustacea, &c.; together with a comparative view of the Irish and British species; and a notice of the distribution of the former over the island or around the coast.

Prof. FORBES remarked that Mr. Thompson's report on the Fauna of Ireland was one of the most complete that had hitherto appeared in the English language. He hoped that Mr. Thompson would yet comprise in his report the insects and infusoria.

Thanks having been voted to the President and Vice-Presidents, the Section adjourned.

SECTION E.—MEDICAL SCIENCE.

MONDAY.

Sir James Pitcairn in the chair.—The Secretary laid before the Section a Meteorological Table from Mr. Prichard, of Beddgelert, in which were detailed the mean results of observations made in that locality, during the year commencing July, 1842.

Dr. HOUSTON read a paper 'On the Circulation of the Blood in Acardiac Fœtuses.'—Dr. Young, Sir Astley Cooper, and Dr. Marshall Hall, held the opinion that the circulation in an acardiac fœtus was maintained by the action of the heart of the perfect fœtus which accompanies it in utero, but this opinion was disproved by the fact that such were not always found in twin cases, but occurred singly, as was proved by Blandin and others; but even omitting such cases, Dr. H. argued, from theoretical principles, that the efficient cause of the circulation must be the innate vital action of the capillaries; the existence of such a power, he contended, was shown in several instances in comparative anatomy: in the earth-worm, the leech, and in the rudimentary vessels of the chick in ovo. This was the power recognized by Alison under the term "vital attraction and repulsion."

Dr. POPHAM read a paper 'On the treatment of Gangrene of the Lung by Chloride of Lime.'—The author stated that the rarity of the occurrence of gangrene of the lung after idiopathic pneumonia induced him to lay the details of a case successfully treated by chloride of lime before the Section; he detailed cases which had proved fatal, and which, on *post mortem* examination, were proved to be gangrene of the lung, and the symptoms of the successful case were perfectly analogous; there existed the sudden exhaustion, with the haggard collapsed countenance, the expectoration of quantities of thin fœtid sanious matter, and the intense fœtor of breath, setting in suddenly after a protracted case of pneumonia. The case appeared rapidly hastening to a fatal termination when the chloride of lime was exhibited, and the improvement was immediate. The fœtor of the breath and expectoration were corrected, the strength improved, and the patient finally recovered; on a relapse occurring, the same remedy was successfully resorted to.

Dr. SARGENT inquired the doses that were used, and if any other remedies were exhibited at the same time.—Dr. Popham replied, that he gave the concentrated solution of Labarraque in mixture of six ounces, containing six drams of the solution, which was given in the course of twenty-four hours—that he gave at the same time, wine, opium, and generous diet.—Dr. Sargent deemed the diagnosis to have been fairly established from the symptoms, and that the case was an important confirmation of the value of the remedy used, but that it was not a new one.—Dr. WALL was aware of the value of chloride of lime as a local remedy, but could not conceive how it was applicable in internal gangrene.—Dr. O'CONNOR observed, that it had the power of acting as a general stimulant where there was a tendency to constitutional sinking: it was this property which made it valuable in collapse in low fever.

Dr. OLLIFFE, of Paris, read a paper 'On Intestinal Obstructions.'—The author's object was to lay before the Association the principle, mode of performance, and results, of Amussat's operation for artificial anus, and to advocate its adoption from the experience he had of its success in cases which must necessarily have proved fatal if it had not been performed. Dr. O. gave the details of eight cases, in many of which he had assisted; of those, four had proved successful; three are still living, one of them a child two years old, in whom the operation was performed twenty-four hours after birth, being rendered necessary by an organic defect.

A MEMBER condemned the operation, not only for its partial fatality, but also from the sufferings of a patient who had survived it for three years, whom he had seen at Rouen.

The Secretary read an abstract of a paper by Mr. I. Erichsen, 'On the Cause of Death after the introduction of Air into the Veins.'—The theories of former physiologists were alluded to and disproved by a series of original experiments; the principal of these theories were that of Bichat, who supposed death to be occasioned by distension and irritation of the vessels of the brain, causing fatal congestion in that organ, and that of Dupuytren and Bouillaud, who supposed that the circulation was arrested by distension, and consequent paralysis of the heart. After disproving these opinions by experiment, the author arrives at what he conceives the true pathology, which he sums up in the following conclusions: first, that the primary arrest of the circulation takes place in the capillaries of the lungs, in consequence of inability of the right ventricle of the heart to overcome the mechanical obstacle presented by the air bubbles in these organs; second, that respiration and animal life cease from want of a supply of arterial blood in the central organ of the nervous system. In conclusion, the author made suggestions for preventing the occurrence in operations, and for averting a fatal termination when it had partially taken place: for the former purpose he advised suppression of the respiration as much as possible, by bandaging the abdomen and thorax; and as remedies to be adopted on its occurrence, he recommended pressure on the principal veins leading from the wound, insufflation of the lungs, and stimulants to increase the heart's action.

TUESDAY.

Mr. CRONIN read a paper 'On the Statistical Results of Amputation.'—The peculiarities of about twenty cases, with the results and brief observations, were communicated from a Report drawn up in a tabular form. He said he brought the subject forward from the desire which now exists to have uniformity in the mode of keeping hospital reports, and the results of such reports, he believed, would be much more valuable, if exhibited in a uniformly constructed table; as a specimen of such a table he communicated his cases.

Dr. O'CONNOR detailed the particulars of a remarkable case, in which the hair was entirely lost from the effects of extreme terror; a healthy boy, twelve years of age, awoke screaming from the vivid impression made on his mind by a dream, in which he thought he was about being murdered; the next day his hair began to fall off, and in a fortnight he was quite bald, and he continues so, though several years have elapsed. Dr. O'Connor observed, that although the opinion exists among physiologists, that depressing passions, such as grief or terror, may turn the hair grey, or cause it to fall off, yet well authenticated cases of such phenomena are very rare; for this reason he deemed it right to lay this case, which came under his own observation, before the Section.

Dr. BEVAN read a paper 'On the Tests for Arsenic,' in which he pointed out the difficulties and unsatisfactory results in the modes of detecting that poison hitherto used in medico-legal investigations; even Marsh's test, he said, failed in giving a quantitive result. In conclusion, he proposed a new method of testing, which, he said, had the advantage of extreme simplicity in its manipulation, and certainty in its result. Into a narrow glass bottle he introduced dilute nitric acid (1 part acid to 4 of water) until it was half full; into this he introduced a clean copper rod, and on the surface of the acid he poured melted tallow, which, when concrete, formed a diaphragm between the immersed and free portions of the rod. On this diaphragm he poured the solution of arsenic, and within six hours metallic arsenic was deposited on the upper portion of the rod; this test will detect the $\frac{1}{100}$th of a grain. A zinc rod will give the result more rapidly.

Dr. WHERLAND detailed the particulars of a rare case of Midwifery, which was deemed by the Section perfectly unique, no similar one existing in the records of practice.

The SECRETARY read a Report by Mr. James Blake, 'On the Physiological Action of Medicines.'—This was an account of a very few experiments instituted by the author in the progress of his researches on the general subject of his inquiry. After alluding to his former publication on the effects of medicinal agents injected into the veins, he detailed a few experiments instituted to ascertain how far chemical substances introduced into the stomach, became discoverable in the various tissues and structures, by their appropriate tests. In the first, he had fed a rabbit for some time on food mixed with strontian, expecting that this substance might be discovered in the bones, where it would replace the lime; but he could not arrive at any satisfactory result, from the difficulty of separating the strontian from the lime in analysis. Acetate of lead was the next substance he experimented with. Two rabbits which had taken this substance with their food, died at different intervals, without any appreciable paralysis having taken place; on the most minute chemical investigations not a trace of the salt could be detected, except in the cerebral tissue; the mucous coat of the stomach was so altered in these experiments, that on separating the contents of that viscus, its internal coat was removed, appearing as a soft unorganized layer

of mucus on the surface of the mass. The Report concluded with some experiments made by injecting solutions of isomorphous salts into the veins; they appeared to confirm an opinion suggested to the author by former experiments, namely, that isomorphism, existing in even widely different classes of chemical agents, appears to determine identity of effect in their physiological action on the nervous system. This subject, the author observed, opened a wide field of inquiry and speculation, but it would be premature and injurious to draw any conclusions on the subject in the present imperfect condition of animal chemistry.

Dr. POPHAM laid before the Section a Statistical Report of the cases admitted into the North Cork Infirmary during the last five years, with the results.

Dr. M'EVERS detailed a remarkable case of malformation.

SECTION F.—STATISTICS.

MONDAY.

Prof. LAWSON, T.C.D., read a paper 'On the Connexion between Statistics and Political Economy.'—The Professor began with remarking, that Statistics present nothing but a dull and barren show of figures, until united with the principles which belong to Political Economy. The former study bears to the latter the same relation which Experimental Philosophy bears to Mathematics. Political Economy, though a mixed science, yet has its abstract part, and the application of the principles thence derived to facts, lead us on to new truths. Statistics afford at once the materials and the test of Political Economy. The Professor then adduced an example of the way in which Statistics frequently correct Political Economy. In Edinburgh, the proportion of marriages to the whole population, is 1 in 136. In Leith, however, where the population is of much humbler grade, the proportion is 1 in 110. Again, in Perth, there is 1 marriage to 159 inhabitants; while in Dundee, which is a much poorer place, there is 1 in 111 inhabitants. Thus Statistics prove, that poverty is not a check on marriage, though political economists have always assumed that it is. We find another example in the doctrine of Profits and Wages, which Mr. Ricardo, followed by other political economists, held to be antagonistic, the increase of wages diminishing profits, and *vice versâ*; whereas Mr. Senior, on looking to facts, found that wages and profits usually rise and fall together. Mr. Ricardo's error, in this instance, is traceable to ambiguity of expression. While Statistics afford materials and a test to Political Economy, the latter points out the proper object of statistical inquiry, and draws conclusions from their results.

Mr. J. HEYWOOD read an abstract of the 'Report of the French Minister of Public Instruction on the Higher Schools of France,' which we omit, as we shall take an opportunity of noticing the original work.

Dr. OSBORNE read an elaborate report 'On the Statistics of Lunacy, with special relation to the Asylum in Cork,'—the material part of which will be shortly published.

TUESDAY.

At the opening of the Section the Secretary informed the meeting that in consequence of a communication which had been received from his Excellency the Lord Lieutenant of Ireland, Capt. Larcom, R.E., would commence business by laying the Report of the Census of Ireland for 1841 on the table, and giving an account of the manner in which it had been taken. He then read a note from his Excellency's Secretary, which stated that his Excellency, desirous of promoting science, had allowed a copy of the unpublished Census of 1841 to be forwarded to the Association.

Capt. LARCOM said, that he was appointed in 1841 a Commissioner of the Census in Ireland, and as the publication of the Ordnance Memoirs was then suspended, he seized the opportunity of collecting statistical information. Under the head of social economy the commissioners included every matter of interest that bore on the state of the country and its inhabitants; and the result is, that the present Census has more the aspect of a statistical document than returns of the kind have had before. Care has been taken to distinguish between natural families and the domestic groups formed of the former with associated inmates The dwellings, too, have been carefully classified; and the people generally have been considered, not under the usual head of agriculturists and manufacturers, but under the three heads, workmen, master workmen, and employers. The chief results of the Census are, in numbers, as follows:—The population of Ireland is 8,175,124, of whom 4,019,576 are males, and 4,155,548 females. These persons live in 1,472,739 social families, and are dwelling in 1,328,839 houses.

Of these persons	2,765,212 males 2,662,023 females	} are unmarried.
	1,142,628 males 1,181,095 females	} are married.
And	111,736 males 312,420 females	} are widowed.

The education varies from the county of Antrim, in which there are 21 per cent. of males, and 23 per cent. of females, who can neither read nor write, to the county of Mayo, in which there are 73 per cent. of males, and 87 per cent. of females, in the like deplorable state of ignorance. The number of houses compared with the population, does not appear at first sight very disproportionate, but when the houses are divided into classes, according to their quality and the number of families they respectively accommodate, the result is, that nearly half the families of the rural population, and more than one-third of the civic population, are found to be living in the lowest state, viz. a cabin of a single room. In the next class, but little superior in comfort, are about the same proportion; and the number living in the better classes are but 16 per cent. in the towns, and 30 per cent. in the civic districts. The tables of ages are much disturbed by the amount of emigration for the last twenty years; which amount of emigration is very uncertain, from the great number of Irish who sail from English ports, where, of course, no separate registry of them is kept; but from the best information attainable, it amounted, between 1821 and 1841, to 538,285; and 39,179 recruits for the army have been raised in Ireland during that time. It was necessary to inquire into these numbers, in order to account for the apparently small increase of the population during the last ten years, which is only 5 per cent., whereas during the former ten years it was stated to have been 14 per cent. There are some grounds for supposing that it was not really so great as 14 per cent. between 1821 and 1831, and when due allowances are made for emigration and other drnughts on the Irish population, especially to more profitable labour in England than their own country afforded, the real increase between 1821 and 1831 appears to have been 12 per cent., though only 5 per cent. remained in Ireland on the 5th of June, 1841. The number of persons of Irish birth dwelling in Great Britain is 419,256, being 1 in 54 of the population of these parts of the empire, while of the natives of Great Britain dwelling in Ireland there are but 30,137, or 1 in 271 of its population. It ought to be stated in connexion with education, that the number of children at school was, at the time the census was taken, 502,950 of both sexes. It is difficult to find any document with which to compare these numbers, as all the returns give the number of "children on the poll," instead of the number actually attending, and the only documents which even with this defect embrace the schools of the whole kingdom are the census of 1821—

Which gave	394,813
Return of 1824 Commission of Inquiry for general instruction	509,150
Census of 1834 by Commission for religious and public instruction	681,000
Census of 1841	502,950

and of these the second and third are professedly of children on the poll. Thus the number in 1841 was only about one quarter of the children who were at that time between the ages of 5 and 15. It is true that this proportion is altogether very small, but as the time that the children of the humbler classes remain at school is very short, it is not impossible but that even with this small number at one time, all may, during some portion of the long period of ten years, be receiving elementary instruction.

Signor ENRICO MAYER, of Milan, then read a Report on the Infant Industrial Schools of Tuscany.—The first infant schools, or, as they are there called, asylums, established in Tuscany, were opened simultaneously in Leghorn and Pisa in 1833. A third was soon after opened in Florence, and the example then was generally followed. They are supported wholly by voluntary contributions, and consequently their increase soon reached its furthest limit. There are now twenty of those infant schools, with 2,000 children. The annual expenditure comes to about 1*l.* sterling a child, house rent, servant's wages, teacher's salary, and soup, being all included. The management of these schools generally rests with committees of ladies, who take by turn the duty of inspection: the remarks written in the inspectors' book become the subject of deliberation at the monthly meetings of the committee. The infant asylums of Tuscany are intended for the poor, and are entirely gratuitous. They are generally divided into two classes, having each a separate room, and a separate mistress. The first class contains children from eighteen months or two years to four or five years old. The second class contains children from four or five to seven or eight. A play-ground is attached to every asylum, and the children perform easy gymnastic exercises, which, however, do not interfere with their own choice of amusements. The introduction of manual works in the infant asylums in Italy constitutes one of the chief differences between them and similar institutions in France or England, and experiments are now making to continue the habits of early industry thus acquired, by procuring some work in the primary schools. A committee of tradesmen and artisans forms part of the society for infant schools at Florence, and they are to provide the children with some easy work, and facilitate afterwards their being employed in the exercise of different arts and trades. Linear drawing and the rudiments of geometry and mechanics are taught in the superior classes, but confining the instruction to that which can be of use in the exercise of every mechanical profession, without taking any one particularly in view. It is anxiously desired that the manual work of the children should be of a nature to be carried on individually, so that the social element of family life should continue undisturbed among them, and the infant population should be preserved as long as possible from the infection of factories. *Instruction* is much less than *education* the object of these infant asylums; these are made as much as possible conducive to moral training, and this by the most simple and gentle means of a maternal guidance. In the school room the children pass through a series of exercises calculated to develope their mental and bodily faculties without tiring them. They are never kept sitting for more than a quarter of an hour at a time. The religious instruction of the children is directed by the curate of the parish in which the asylum is established. The mistresses of the asylums keep a journal, in which the moral history of the institution can be said to be contained, and from which a number of most interesting facts have been extracted, elucidating the workings of human intelligence and human affection, at an age which has not until now been sufficiently studied by the moral philosopher. Though the Tuscan infant asylums are of so recent a date, yet their effects are already, and in a remarkable degree, perceptible. The improvement in the health of the children received in the Tuscan asylums is a most striking fact. The study of this fact on the part of our medical committees has led to most important observations, not only with respect to the infants themselves, but extended to their families, and indeed to the whole of the poor population of our towns, and to the various districts of the towns themselves. The cases of death in our asylums is between 2 and 3 per cent., whilst the general mortality of children between two and six is in Florence 16 per cent. The same results have been observed in Lombardy, where infant asylums are more numerous than in Tuscany. A thorough reform of every system of education, going through every species of schools, will be necessary, in order to put them on a par with the high educational character of our infant schools. The moral results likewise are not confined to the infants themselves, but are extended to their families. A great proportion of the children received at the infant asylums in Florence are found to come from the Foundling Hospital; indeed, out of 600 children, *four hundred* belong to that class. They are children whose parents were forced by extreme destitution to abandon them; but as soon as our infant asylums were known to exist, parental affection resumed its rights in the hearts of those hundreds of parents, and a dishonouring brand

was wiped away from the head of those hundreds of children, who found again the joy of their family, and were restored to their name and their civil condition. In the three years anterior to the opening of the infant asylums, the average number of children taken out of the Foundling Hospital was 176; but in 1833, when the asylums were first established, the number withdrawn was 214, and in 1837 it increased to 404. Few facts more pregnant than this with important consequences have ever been brought to light in the moral statistics of any country. The author, in conclusion, pointed out the superior efficacy of the elevating and kindly treatment of men above the harsh and repressive. "Who," he observed, "has not seen in the bad direction of public instruction or in the mismanagement of public charities a necessity for the increase of coercive institutions, which yet prove insufficient for the repression of crime; and has not learned to conclude that there may be a system of instruction which teaches no virtue, a system of charity which relieves no misery, and a system of punishment which puts a stop to no crime?"

Mr. O'Flanagan then read a paper, containing a description of the Blackwater River, after which a long discussion ensued, when it was agreed that a party should be formed to visit the described localities on Friday, Sir Richard Musgrave and Lord Mountcashel engaging to find boats for the purpose. Thanks having been voted to the Lord Lieutenant, and to the officers of the Section, the Section then adjourned.

Section G.—MECHANICAL SCIENCE.

Mr. J. Juckes exhibited the model of his Furnace for Burning Smoke, with fire-bars consisting of endless chains passing over rollers, which was explained at the last Manchester meeting.

A communication from Mr. L. Cooke, of Parsonstown, describing a Clock Movement of his invention, and a new mode of suspending the pendulum, was read by Mr. Taylor. In this contrivance the pendulum is detached from all parts of the clock movement, and is in contact only at the suspending needle points. The pendulum is made to vibrate in half-seconds, by which means the variations owing to expansion and contraction are greatly diminished, and that source of error is further corrected by a compensating mechanical pendulum.

Mr. P. Leahy read a paper, on a method of ascertaining inaccessible distances at sea or land, for which he claimed the advantages of greater accuracy and expedition than by the method of measuring a base line by the log. On his plan two small telescopes are fixed at the greatest distance the vessel will admit of, and so as to form some multiple of ten feet. This distance forms the base line on which the calculations are to be made.—Mr. Macneill being requested by Dr. Scoresby to state his opinion of the invention, the latter said that it was sound in principle, but he thought with so short a base line and with the difficulty of taking simultaneous observations at sea, it would be liable to inaccuracy.

Mr. Hawkins made a communication on the formation of Concrete, showing more particularly the importance of having the stones of the proper sizes, so that the smaller ones should as nearly as possible fill up the interstices of the larger. Where the sizes were properly adjusted, he found that one proportion of lime to twenty of shingle, formed a stronger concrete than when larger proportions of lime were used. Some engineers are in the habit of using one of lime to six of shingle, and the proportions generally used are as one to eight. A specimen of concrete made in the proportions he recommended, and with shingle of proper sizes, was found after a short time to be stronger than an old Roman wall.—Mr. Macneill said he preferred artificial cement to lime, and he had found great advantage to result from allowing the mass of concrete to fall from a height, by which means the shingle became more compressed together. Mine dust mixed with the lime, he believed, made the most perfect concrete.—Mr. Jessop and Mr. Taylor also approved of mine dust. The latter observed, that it was probably from the quantity of iron in mine dust, that its adhesive properties were derived.

Mr. Hawkins read a paper on the friction of water against water, as exemplified in the well-known experiment of emptying a vessel full of water by sending a jet of the fluid through it. This friction of the particles of fluid against each other, caused the principal obstruction to the motion of ships through the water; and he conceived that it would be advantageous to grease the bottoms of ships to diminish the friction.

Sir T. Deane explained the method adopted by his brother, Mr. A. Deane, to raise the *Innisfaile* steam vessel, of 500 tons, which was sunk by striking against an anchor in the Cork river a few years ago. The ordinary methods of raising sunken ships having proved ineffectual, a coffer-dam was made round the vessel in the middle of the river; and pumped dry by means of eight or nine chain pumps. The leak was ascertained by digging under the ship, and a cow hide was nailed over it to keep it water-tight. The coffer-dam was removed as quickly as possible, when the *Innisfaile* again floated by her own buoyancy, and the steam having been got up, she was taken to Passage to undergo the necessary repairs. The whole cost was 400*l.*, and the work was done in the course of four tides.

Mr. Lucas, in the absence of Mr. Fairbairn, reported the progress of the Committee appointed at the last meeting, to ascertain experimentally whether any and what changes take place in the internal constitution of metals when exposed to continual vibration and concussion. (The results of these experiments were stated in Section A. on Saturday, by Mr. Hodgkinson—see *ante*, p. 799).—The effect of concussion on the shafts of tilt hammers is very remarkable. The shafts are made of the best ash, but after three or four months' use the strength of the wood is so much deteriorated that the shafts break off short as if they were rotten. Copper is also similarly affected by concussion, and in working copper articles, and in rolling silvered plates of copper, the workmen find it necessary to anneal the metal to prevent it from breaking.—Mr. J. Taylor observed that this subject had been much discussed at Manchester, and with the same results. He alluded to the difficulty of procuring good chains, and said it occurred to him that probably it might arise from the chain maker being *too good* a workman, and that the evil was caused by too much swaging in finishing the work. If, however, the quality of the iron could be restored by annealing, as might be inferred from these experiments, that would present the means of obtaining good chains in the first instance and of strengthening them after use.

Mr. J. E. Purser exhibited Life Preservers of his invention, which are applicable in cases of fire and of shipwreck.—To show the value of this first invention, he descended from an upper window of the court house; and he tested the efficacy of the water-escape cork-jacket at Cove during the excursion on Thursday.

Mr. J. Taylor described a simple Steam-engine Indicator, which had been invented by Mr. A. Rous, who was formerly a working engineer in Cornwall. In consists of a half-second pendulum, to which a pencil is fixed and pointed against a card. The card is attached to the beam of the engine, and as it moves perpendicularly the pencil on the pendulum marks on it waving lines, which are wide apart when the piston moves quickly, and closer together as the velocity of the piston decreases. The distances between the lines indicate the spaces moved through by the piston in half a second in different parts of the stroke.

WEDNESDAY.

The Rev. Mr. Scoresby described an apparatus for simplifying the illustration of trigonometrical operations, especially with reference to the purposes of education. It is called by the inventor a trigonometrical indicator.

Mr. H. Henessy read a paper on a very simple apparatus for the purpose of determining the distance of objects. A moveable base line carries on it a small arc, by which the approximate determination of distances of 500 feet is easily effected.

Mr. G. White communicated an account of Mr. Starkey's system of filtration by compressed sponge.

Mr. Macneill concluded the business of the Section by congratulating the mechanical gentlemen of Ireland on the circumstance of this meeting having taken place among them. Their intercourse with such men of science as compose the British Association must have a powerful tendency to excite and develope native talent.

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			£	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*	£ *s.* *d.*
1837	39	59	1000	67 8 4	132 14 6	58 19 9	8 19 4
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JOHN RICHARDS, Esquire,
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Sums invested in the purchase of Redeemable and Irredeemable Annuities	105,985 7 10
Sums invested in Government and Bank Stock	55,291 14 2
Value of Reversionary Rights, Government Annuities, and Feu-duties	39,307 9 1
Value of House Property and Floating Balances, after deducting the amount due under Policies emerged, but not paid	9,935 1 0
Total	£1,275,590 11 1

N.B.—Whilst this Great Fund of upwards of ONE MILLION AND A QUARTER has been accumulated, and whilst upwards of HALF A MILLION has been paid to Members, or to the representatives of Members under emerged Policies, it affords the Directors much gratification to state, that not a shilling has ever been lost upon any one of the Society's Investments.

The Annual Revenue of the Society at the same date was 202,889*l.* 14*s.* 3*d.*

Whereof arising from Premiums	£145,386 14 4
Capital	57,502 19 11
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